

TEACHER'S KEY
TO
CANADIAN
BUSINESS
MATHEMATICS
Book 1

BY
CATHERINE LUND

CURRICULUM

HF
5691
L96
1962
bk.1
tch.key

GREGG DIVISION
McGRAW-HILL COMPANY OF CANADA LIMITED
TORONTO

CURR HIST

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CHAPTER 1 - ADDITION AND SUBTRACTION

- I 1. (a) $M = \{3, 4, 5, 6, 7, 8\}$ (b) $N = \{3, 5, 7\}$ (c) $O = \{2, 4, 6, 8\}$
 (d) $P = \{3, 5, 7\}$ (e) $R = \emptyset$ (f) $S = \{0, 1, 2, 4, 6, 8, 9\}$
2. (a) $P = \{\text{Newfoundland, Prince Edward Island, New Brunswick, Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan, Alberta}\}$
 (b) $M = \{\text{January, March, May, July, August, October, December}\}$
 (c) $E = \{\text{any seven elements}\}$ (d) $G = \{\text{Matthew, Mark, Luke, John}\}$
 (e) $T = \emptyset$ (f) $N = \{10, 11, 12 \dots 98, 99\}$
 (g) $P = \emptyset$ (h) $S = \{1, 2, 3, 4, 5\}$
3. (a) The months of the year whose names start with the letter J.
 (b) The Atlantic provinces of Canada.
 (c) The capital letters of the English alphabet.
4. (a) = (b) \neq (c) \neq (d) \neq (e) =

II See text.

III 1.	82	2.	91	3.	41	4.	107	5.	45
6.	53	7.	72	8.	61	9.	47	10.	21
11.	25	12.	42	13.	26	14.	25	15.	83
16.	100	17.	91	18.	59	19.	78	20.	56

IV 2. 30, 44, 40, 35, 44, 37, 40, 45

V 1.	32,385	6.	46,819,438	8.(b)	206,601 sq.mi.
2.	48,701	7.(a)	16,080,791	(c)	753,497 sq.mi.
3.	433,024	(b)	1,763,692	9.	2,110 calories
4.	586,645	(c)	2,853,821	10.(a)	95,170 sq. mi.
5.	7,722,159	8.(a)	3,845,774 sq. mi.		

- VII 1. (a) 47, 45, 48, 32, 52, 48, 46, 44, 52, 43, 457
 (b) 80, 83, 79, 97, 89, 29, 457
 (c) 457
2. (a) \$437,710, \$384,355, \$362,847, \$354,849, \$292,903, \$279,325
 (b) \$586,110, \$884,297, \$157,045 \$301,806, \$182,731
 (c) \$2,111,989
3. (a) \$20,246, \$477, \$21,233, \$19,527, \$276, \$20,125
 (b) \$753, \$18,486, \$25,966, \$36,679, \$81,884
4. (a) \$647,871, \$618,465, \$581,550, \$592,048, \$510,869, \$461,340
 (b) \$458,976, \$307,495, \$187,857, \$95,813, \$126,460,
 \$126,393, \$255,605, \$543,572, \$147,565, \$361,882,
 \$55,596, \$454,513, \$290,416
 (c) \$3,412,143

- VIII 1. \$2,964.80 2. \$3,300.97 3. \$3,321.39
 4. \$2,509.76 5. \$6,646.10 6. \$50,563.16
7. Vertical: \$24.56, \$10.77, \$12.88, \$10.07, \$58.28
 Horizontal: \$1.50, \$9.00, \$6.50, \$0.75, \$4.34, \$9.00, \$6.42
 \$1.60, \$6.33, \$3.71, \$2.19, \$1.53, \$5.59
 Total: \$58.28
8. Vertical: \$27.08, \$10.72, \$10.40, \$5.18
 Horizontal: \$9.00, \$0.89, \$0.60, \$9.00, \$4.19, \$1.74, \$2.10
 \$2.40, \$2.88, \$2.85, \$8.05, \$3.79, \$5.89
 Total: \$53.38
- 9.(a) Horizontal: \$9,890.73, \$1,126.74, \$1,226.95, \$844.20
 \$1,278.41, \$107.09, \$33.15, \$665.51, \$144.42

- (b) Vertical: \$3,168.42, \$4,180.06, \$7,968.72
 (c) Total: \$15,317.20

10. (a) Horizontal: \$1,511.53, \$461.74, \$418.20, \$132.17, \$715.74,
 \$233.39, \$192.25, \$114.72, \$50.36, \$79.55
 (b) Vertical: \$2,306.46, \$915.35, \$692.24, \$58.60
 (c) Total: \$3,909.65

- IX 1. (a) 253 feet (b) 84 $\frac{1}{3}$ yards
 2. 50 animals
 3. (a) 18 $\frac{4}{5}$ dollars, (b) 1,880 cents, (c) 376 nickels, (d) 188 dimes
 4. (a) 130 one-dollar (b) 65 two-dollar (c) 26 five-dollar
 5. (a) 87 $\frac{1}{12}$ feet (b) 29 $\frac{1}{36}$ yards (c) 1,045 inches
 6. (a) {1,3,5, ...} (b) {2} (c) impossible
 7., 8., 9. Follow text.
 10. The set of multiples of three between 3 and 15 inclusive.

- X 1. 109 2. 275 3. 223 4. 723
 5. 3,102 6. 11,011 7. 29,011 8. 889
 9. 2,728 10. 202 11. 2,159,781 12. 988,998
 13. 10,102 14. 750 15. 10,011 16. 5,393
 17. 2,763 18. 197,002 19. 31,324 20. 2,058
 21. 2,031,365 22. 190 23. 16 24. 1,971,000
 25. 1,108 26. 23,334 27. 2,497,895 28. 3,985,831
 29. 821,816
 30. 8,810, 9,420, 21,880, 24,280, 31,360

31. Horizontal: \$7,674.54, \$963.40, \$777.11, \$27.04, \$1,689.28,
 \$10,516.44, \$608.20 \$370.42, \$1,356.60, \$824.80
 \$9,617.36, \$767.92
 Vertical: \$35,911.31, \$718.20
 Total: \$35,193.11

32. Horizontal: \$342.69, \$1,359.00, \$719.50, \$4,694.57, \$7,645.08,
 \$3,428.92, \$900.38, \$48.77, \$705.00 \$1,774.44
 Vertical: \$22,059.54, \$441.19
 Total: \$21,618.35

- XI. 1. (a) Yes (b) No
 2. (a) No (b) No
 3. $P = \{1, 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97\}$
 4. Follow text.
 5. (a) 22, 23, 24 (b) 1297, 1298, 1299, 1300
 (c) N is the set of all the natural positive integers in consecutive order.
 6. (a) 1, 57, 63, 39, 17, 101, 51, 321, 49
 (b) 24, 34, 18, 104, 2
 (c) 1, 17, 101, 2
 (d) 63, 49, 39, 104, 34, 51
 7. (a) R is the set of natural positive integers greater than 1 and less than 8.
 (b) S is the set of odd positive integers less than 8.
 (c) T is the set of the days of the week beginning with the letter T.
 (d) V is the set of the months of the year commencing with the letter J.

9. $\{3,5,1\}$, $\{5,1,3\}$, $\{5,3,1\}$, $\{3,1,5\}$, $\{1,5,3\}$
 10. \emptyset

Figuring for Fun

1. 10 twos in the unit column, 9 twos in the tens column and 4 twos in the hundreds column.

CHAPTER 2 - MULTIPLICATION AND DIVISION

- II 1. 959 2. 6,021 3. 6,427,683
 4. 2,878,441 5. 9,234,528 6. 74,080,942
 7. 330,426 8. 102,007,395,224 9. 222,662,482,560
 10. 12,626,703 11. 1,034,099,069 12. 558,181,260
 13. 2,736,540,509,505 14. 39,287,436,119,983
- III 1. (a) 235.31662 (b) 619,159.1406
 (c) 2,270,599,755.816 (d) 697,393,463.313462
 2. \$49.68, \$44.28, \$20.79, \$26.10, \$140.85
 3. (a) \$7.52, \$35.70, \$1.62, \$74.75, \$85.92, \$41.31, \$246.82
 (b) \$2.97, \$12.42, \$13.23, \$34.65, \$13.20, \$76.47
 (c) \$5.34, \$10.43, \$12.87, \$32.11, \$14.24, \$74.99
- IV 2. (a) 521.42 (b) 18,715,545.2
 (c) 21,648,393.3892 (d) 14,583,766.8377
 3. (a) 83,945.6086224 (b) 29,891,414,181.856
 (c) 3,907,566,573.98564
 4. \$28.35, \$152.52, \$44.59, \$62.06, \$68.20, \$12.50, \$368.23
 5. (a) \$1,005.00, \$1,750.00, \$1,949.87, \$107.25, \$102.00,
 \$315.12, \$322.50, \$854.55, \$6406.29
 (b) \$402.38, \$1,079.34, \$2,077.14, \$11,570.61, \$1,712.34,
 \$3,718.98, \$261.25, \$932.35, \$190.23, \$21,944.62
- VII 1. 91, R.1 2. 97, R.51 3. 88, R.710
 4. 19, R.2,922 5. 72, R.3 6. 583, R.18
 7. 181, R.24,065 8. 16, R.8,320 9. 759, R.174,127
 10. 824, R.34 11. 4,534 12. 24,857, R.84
 13. 39,759, R.687 14. 325,839,035, R.176 15. 332,566,122, R.12
 16. 9,015, R.2,134 17. 34,482, R.22 18. 33, R.43
 19. 227,600,768 R.4 20. 119,277, R.13
- VIII 1. 45¢, 5¢ 2. 40¢, 10¢ 3. 34¢, 16¢ 4. 20¢, 5¢
 5. 22¢, 3¢ 6. 42¢, 8¢ 7. 35¢, 5¢ 8. 98¢, 27¢
 9. \$1.70, 30¢ 10. 67¢, 28¢ 11. 75¢, 20¢ 12. 32¢, 18¢
 13. 74¢, 26¢ 14. 75¢, 10¢ 15. 42¢, 8¢ 16. March 29
- X 1. 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89,
 97, 101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151,
 157, 163, 167, 173, 179, 181, 191, 193, 197, 199
 2. $2 \times 2 \times 2 \times 89$ 3. $3 \times 17 \times 641$ 4. $2 \times 6,173$
 5. $2 \times 2 \times 29$ 6. $241 \times 1,571$ 7. $2 \times 2 \times 2 \times 17 \times 281$
 8. $461 \times 1,697$ 9. $2 \times 2 \times 3 \times 3 \times 7 \times 13 \times 47$
 10. $2 \times 500,881$
- XI 1. 2 2. 4 3. 4 4. 1
 5. 4 6. 12 7. 42 8. 663

9. 56	10. 18	11. 60	12. 90
13. 90	14. 154	15. 16	16. 45
17. 90	18. 280	19. 18,018	20. 273,600
21. 6,703,200	22. 18,564	23. 3,240	24. 2,640
25. 15,120	26. 12,740	27. 792	28. 13,728
29. 2,142	30. 7,752		

- XIII
- 15 years of age
 - 80
 - (a) 6,320 kilowatt-hours
 - (b) 79 kilowatt-hours
 - (c) \$14.22
 - (d) \$24.48, \$2.70
 - 399 miles, approx. 275 miles, approx. 366 miles, 314 miles, approx. 91 miles
 - (a) \$13,122, \$14,754, \$15,822, \$15,862, \$14,033
 - 21, 113, 132, 135, 130, 141, 364, 607, 579, 183, 204
 - 54.47, 248.15, 43.74, 249.17, 40.87, 282.45, 42.70, 347.71
40.09, 333.83, 39.81, 275.41, 62.56, 248.36, 44.74, 384.29
41.97, 284.44, 37.08, 235.12, 23.37, 238.92
 - 83.33 m.p.m.; 233.33 m.p.m.; 300 m.p.m
 - \$3, \$4, \$6, \$5, \$7
 - (a) 48.5
 - (b) \$5,391.25, \$46.08, \$63.65, \$22.80
 - (c) \$4,825.95, \$565.30 less, \$41.25, \$45.95

- XIV
- $\{2 \times 2 \times 2 \times 2\}$
 - $\{2 \times 3 \times 3\}$
 - $\{2 \times 2 \times 3 \times 3\}$
 - $\{7 \times 7\}$
 - $\{2 \times 2 \times 2 \times 2 \times 2 \times 2\}$
 - $\{2 \times 2 \times 3 \times 7\}$
 - $\{2 \times 2 \times 2 \times 2 \times 7\}$
 - $\{2 \times 2 \times 31\}$
 - $\{2 \times 2 \times 39\}$
 - $\{3 \times 359\}$
 - $\{53, 59, 61, 67, 71, 73\}$
 - $\{79, 83, 89, 97\}$
 - $\{1, 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47\}$
 - $\{29, 31, 37, 41, 43, 47\}$
 - $\{101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199\}$
 - closed
 - closed
 - closed
 - not closed
 - closed
 - closed
 - 1,279 bananas
 - 2,497 boys
 - 22,708 kites
 - closed
 - closed
 - 201 oranges
 - 145,851 girls

CHAPTER 3 - COMMON FRACTIONS

- I
- $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}$
 - $\frac{3}{16}, \frac{5}{9}, \frac{7}{10}, \frac{3}{7}$
 - $\frac{11}{12}, \frac{9}{11}, \frac{17}{19}$
 - $\frac{1}{2}, \frac{3}{4}, \frac{7}{8}, \frac{15}{16}, \frac{4}{9}, \frac{3}{10}, \frac{4}{7}, \frac{1}{12}, \frac{2}{11}, \frac{2}{19}$
- II
- $\frac{3}{9}$
 - $\frac{4}{16}$
 - $\frac{49}{56}$
 - $\frac{14}{49}$
 - $\frac{12}{30}$
 - $\frac{18}{24}$
 - $\frac{36}{81}$
 - $\frac{54}{66}$
 - $\frac{56}{104}$
 - $\frac{45}{85}$
 - $\frac{20}{48}$
 - $\frac{33}{42}$
 - $\frac{42}{90}$
 - $\frac{52}{64}$
- III
- $\frac{5}{6}$
 - $\frac{1}{3}$
 - $\frac{1}{2}$
 - 3
 - $\frac{3}{8}$
 - $\frac{3}{4}$
 - $\frac{1}{8}$
 - $\frac{1}{4}$
 - 9
 - $\frac{4}{11}$
 - $\frac{9}{34}$
 - $\frac{5}{9}$
 - 1
 - 3
 - $\frac{4}{31}$
 - $\frac{4}{9}$
 - $\frac{1}{4}$
 - $\frac{2}{3}$
 - $\frac{5}{7}$
 - $\frac{2}{7}$

IV	1.	4 1/3	2.	5 2/5	3.	4 1/7	4.	4
	5.	3 4/9	6.	3 9/10	7.	4 3/11	8.	7
	9.	3 12/13	10.	4 7/3	11.	79 3/5	12.	65 3/11
	13.	15 5/33	14.	13 1/3	15.	40	16.	7 1/22
	17.	64 8/17	18.	15 11/16	19.	9	20.	34 12/23
V	1.	29/4	2.	159/8	3.	132/12	4.	1,076/11
	5.	341/19	6.	39/3	7.	84/5	8.	126/9
	9.	183/11	10.	311/21	11.	1,078/11	12.	199/10
	13.	253/15	14.	316/4	15.	15,140/123	16.	3,002/3
	17.	6,867/7	18.	3,722/27	19.	18,947/51	20.	20,109/107
VI	1.	3/4	2.	1 4/11	3.	20 2/3		
	4.	22 3/4	5.	29	6.	58 16/17		
	7.	17 5/9	8.	26 5/21	9.	50		
	10.	49 14/15	11.	2/2, 1/1, 1 3/10	12.	1 11/24		
	13.	9/9, 8/8, 36/36, 29/53/72						
	14.	1/1, 4/4, 3/3, 12/12, 9/9, 40 1/4						
	15.	1/1, 32/32, 2/2, 8/8, 35 55/64						
	16.	1/1, 4/4, 10/10, 20/20, 28 53/100						
	17.	6/6, 1/1, 2/2, 10/10, 29 1/60						
	18.	10/10, 4/4, 1/1, 8/8, 63 57/80						
	19.	40/40, 30/30, 1/1, 10/10, 199 47/120						
	20.	3/3, 5/8, 1 1/15						
	21.	3/3, 4/4, 1 5/12						
	22.	3/3, 4/4, 1 11/24						
	23.	2/2, 3/3, 9 1/12						
	24.	6/6, 3/3, 8/8, 57 65/72						
	25.	30/30, 20/20, 15/15, 12/12, 28 17/60						
	26.	9/9, 3/3, 8/8, 18 55/72						
	27.	1,687/2,880						
	28.	2 7/120						
	29.	1 3,149/4,032						
	30.	712 3,319/4,320 feet						
	31.	39 1,963/5,544 yards; 119 feet must be purchased; cost, \$29.16.						
VII	1.	1/8	2.	4/25	3.	5 1/12	4.	5 7/36
	5.	3 11/12	6.	10 109/136	7.	3 8/15	8.	8 13/24
	9.	21 26/35	10.	33 5/9	11.	6	12.	12 11/24
	13.	17 109/168	14.	15 481/504	15.	2 7/10	16.	2 67/144 in.
	17.	2 73/360 yd.	18.	13 9/10				
	19.	Sold: red 32 7/24 yd.; blue 36 1/12 yd.; green 8 1/9 yd.; pink 31 5/9 yd.; total 108 1/24 yd.						
		Left: 17 17/24 yd.; 13 11/12 yd.; 41 8/9 yd.; 18 4/9 yd.						
	20.	2 rolls; 1 101/144 feet left.						
VIII	1.	4 1/6	2.	2 1/5	3.	7 1/3		
	4.	30	5.	49	6.	9,276 3/4		
	7.	6 3/4	8.	1,449	9.	355,411 4/5		
	10.	811,632 16/25	11.	2,173 3/4	12.	123,829 1/16		
	13.	643 43/50	14.	2,288	15.	5,277 9/11		
	16.	1,291,309 1/2	17.	306,813 3/5	18.	773,620 8/9		
	19.	22,220,000						
IX	1.	7/40	2.	11/91	3.	23/917	4.	21/200
	5.	4/71	6.	36	7.	175	8.	56 4/7
	9.	458 4/7	10.	108 1/3	11.	42/55	12.	1 11/24
	13.	1 62/675	14.	1 87/721	15.	101/111	16.	1 32/129
	17.	75/247	18.	1 69/95	19.	2 10/99	20.	2 23/84
X	1.	3/10	2.	39/50	3.	1/8		
	4.	13/400	5.	1 27/500	6.	9 7/8		
	7.	13 1/40	8.	1/2	9.	3/200		
	10.	9 3/8	11.	7/8000	12.	9 59/200		
	13.	4 189/400	14.	6,667/20,000	15.	17 1/1,000		

16.	18 29/160	17.	6 1/40	18.	1/800
19.	39 897/1,000	20.	47 1,881/4,000	21.	0.25
22.	0.125	23.	0.875	24.	0.5
25.	0.375	26.	0.625	27.	0.2
28.	0.6	29.	0.3	30.	0.33333 1/3
31.	0.87 $\frac{1}{2}$	32.	0.4	33.	0.16
34.	0.16666 2/3	35.	0.142 6/7	36.	0.71428 4/7
37.	0.5555 5/9	38.	0.8181818 2/11	39.	0.916666 2/3
40.	0.94444 4/9	41.	5.4615	42.	0.148
43.	0.03	44.	0.7778	45.	3,211
46.	1.1818	47.	0.304	48.	12.2222
49.	0.082	50.	18.765	51.	0.4074
52.	16.85714	53.	27.27273	54.	0.455
55.	16.1667	56.	4.684	57.	3.391
58.	2.72413793	59.	6.3548	60.	11.054054
61.	16.16	62.	0.08 $\frac{1}{2}$	63.	0.407
64.	27.27	65.	2.36	66.	0.894736842
67.	1.153846	68.	2.523809	69.	0.4736842105263157
70.	0.578947368421052631	71.	0.4117647058823529	72.	0.230769
73.	0.5652173913043478260869	74.	0.478260		

- XI
- (a) 1/16 (b) 1/12 (c) 5/12 (d) 5/6 (e) 2/3
(f) 9/16 (g) 13/16 (h) 7/8 (i) 15/16 (j) 7/16
 - (a) 41 2/3¢ (b) 93 3/4¢ (c) 70 5/6¢ (d) 37 $\frac{1}{2}$ ¢ (e) 68 3/4¢
(f) 53 1/8¢ (g) 80¢
 - \$20, \$133, \$262.50, \$47.50, \$96.75, \$120.75, \$99, \$161.25,
\$131.25, \$1,072.00
 - \$171.37 $\frac{1}{2}$, \$139.50, \$183.62 $\frac{1}{2}$, \$494.50
 - \$1,387.50, \$10.62, \$60.00, \$212.50, \$516.67, \$2,187.29
 - (a) \$9 (b) \$24 (c) \$21.75 (d) \$45.00
(e) \$33.91 2/3 (f) \$2.25 (g) \$48.41 (h) \$26.25
 - (a) \$27.33 1/3 (b) \$6 (c) \$6.50 (d) \$85.83 1/3
(e) \$5.50 (f) \$24.66 2/3 (g) \$475.33 1/3 (h) \$35
 - (a) \$78.81 $\frac{1}{4}$ (b) \$113.12 $\frac{1}{2}$ (c) \$14.75 (d) \$32.37 $\frac{1}{2}$
(e) \$65.62 $\frac{1}{2}$ (f) \$8.81 $\frac{1}{4}$ (g) \$61.87 $\frac{1}{2}$ (h) \$32.37 $\frac{1}{2}$

- XII
- T 2. F 3. F 4. F 5. F 6. F 7. T 8. F
 - F 10. T 11. F 12. T 13. 7 14. 1 15. 1 16. 1
 - 5 18. 3 19. 8 20. 3 21. 28 22. 1 23. 2 24. 1
 - 2 26. 1 27. 2 28. 3 29. 10 30. 0 31. 1 32. 4
 - 1 False, 2 False, 3 False, 4 True
 - 1 False, 1 $\frac{1}{2}$ True, 2 False, 2 $\frac{1}{2}$ True, 3 False
 - 0 False, 2 True, 4 True, 6 True
 - 1 True, 3 True, 5 False, 7 True, 9 True
 - All True
 - 1, 2, 3 True, 4 False, 5 True
 - 4, 5 and 6 True, 7, 8 and 9 False
 - $\frac{1}{2}$, $\frac{1}{2}$, 3/4, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 1 3/4 False, 1 and 2 True
 - { $\frac{1}{2}$, 1/3, 2/3}
 - {11, 13, 17, 19, 23, 29}
 - \emptyset
 - {2, 4, 6, 8, 10}
 - {3/1, 2/1, 3/2}

Figuring for Fun

$$1. \quad \frac{4 \times 4}{4 \times 4} = 1, \quad \frac{4}{4} + \frac{4}{4} = 2, \quad \frac{4 + 4 + 4}{4} = 3,$$

$$4 + 4 - \frac{4}{4} = 7, \quad 4 + 4 + 4 - 4 = 8, \quad \text{etc.}$$

CHAPTER 5 - ALGEBRA AND ITS ALLIES

- I
- | | | | |
|--------------------------|---------------------------|-----------------------|-------------------------|
| 1. $t = 14$ | 2. $x = 37\frac{1}{2}$ | 3. $y = 6\frac{1}{2}$ | 4. $a = 13.8$ |
| 5. $b = 8$ | 6. $z = 9$ | 7. $x = 9.9$ | 8. $d = 1 \frac{7}{8}$ |
| 9. $x = 197$ | 10. $b = 9\frac{1}{2}$ | 11. $x = 16$ | 12. $A = 13\frac{1}{2}$ |
| 13. $P = 5$ | 14. $y = 1 \frac{3}{4}$ | 15. $d = 5$ | 16. $z = 9.2$ |
| 17. $x = 2.8$ | 18. $y = 1.5$ | 19. $a = 0.4$ | 20. $V = 0.3$ |
| 21. $y = 18$ | 22. $x = 55$ | 23. $a = 10$ | 24. $y = 63$ |
| 25. $d = 12$ | 26. $A = 3$ | 27. $V = 73.4$ | 28. $P = 10.4$ |
| 29. $s = 5$ | 30. $b = 6 \frac{11}{18}$ | 31. $x = 4$ | 32. $T = 4$ |
| 33. $d = 3 \frac{2}{5}$ | 34. $a = 5$ | 35. $y = 4$ | 36. $p = 33$ |
| 37. $b = 40$ | 38. $s = 4$ | 39. $x = 21$ | 40. $h = 15$ |
| 41. $x = 5$ | 42. $y = 3$ | 43. $d = 3$ | 44. $A = 3$ |
| 45. $d = 1$ | 46. $s = 3$ | 47. $B = 8$ | 48. $T = 6$ |
| 49. $P = 1 \frac{1}{27}$ | 50. $b = 5 \frac{13}{31}$ | | |
- II
- | | | | |
|------------------------|---|--------------|-------------|
| 1. $x = 1/3$ | 2. $f = 11/21$ | 3. $y = 2$ | 4. $p = 3$ |
| 5. $L = 4 \frac{1}{5}$ | 6. $d = 6$ | 7. $x = 24$ | 8. $m = 2$ |
| 9. $p = 2$ | 10. $a = 5$ | 11. $x = 14$ | 12. $y = 7$ |
| 13. $y = 8$ | 14. $d = 2/5$ | 15. $n = 4$ | 16. $m = 6$ |
| 17. $t = 2$ | 18. $g = 66 \frac{6}{13}$ | 19. $N = 4$ | |
| 20. No solution. | Should be $5p + 3p + 8 = 50 + 2p$, and $p = 7$. | | |
- III
- | | |
|--|-----------------------------------|
| 1. $x + 6 = 14, \quad x = 8$ | 2. $x + 7 = 5.3, \quad x = -0.85$ |
| 3. $8x - 13 = 19, \quad x = 4$ | 4. $4x - 85 = 15, \quad \$25$ |
| 5. $3x + 0.74 = 1.25, \quad 17\text{¢}$ | 6. $x + 11 = 57, \quad 46$ |
| 7. $x + x/3 = 36, \quad 27$ | |
| 8. $x + 3x = 16, \quad \text{Hazel 12 years old, Harry 4 years old}$ | |
| 9. $4x - x = 18, \quad \text{Sylvia 24 years old, Peter 6 years old}$ | |
| 10. $x + 2x = 144, \quad \text{Louise 96 marks, Roland 48 marks}$ | |
| 11. $\frac{1}{2}x = 12 + 17, \quad \58 | |
| 12. $2x + 12.50 = 60, \quad \$23.75$ | |
| 13. $\frac{1}{4}x = 372.50, \quad \$1,490.00$ | |
| 14. $3x + 4x + 2 + x = 34, \quad \text{Penelope 4, Alice 12, Liz 18}$ | |
| 15. $x - 1 + x + x + 1 = 2.88, \quad \text{Peter 95¢, Sally 96¢, Colin 97¢}$ | |
| 16. $x + 3x + 1 + 4x = 25, \quad \text{Pencil 3¢, Pen 9¢, Notebook 13¢}$ | |
- IV
- | | | |
|-------------------|--------------------------------|------------------|
| 1. (a) 72 | (b) 88,209 | (c) 3,200 |
| 2. (a) 16,000 | (b) 1,778,112 | (c) 2,592,000 |
| 3. (a) $3b$ | (b) $4g$ | (c) b^3 |
| (d) g^4 | (e) b^2g^2 | |
| 4. (a) $4x$ | (b) $2x + 2y$ | (c) x^3y^2 |
| (d) a^3x^3 | (e) x^4y | |
| 5. (a) 4^3 | (b) 3^4 | (c) 5^3 |
| (d) 10^4 | | |
| 6. (a) 3^6 | (b) 5^5 Text should be 3,225 | (c) 10^6 |
| 7. 52 | | |
| 8. 120 | | |
| 9. (a) 12 batches | (b) $5x$ batches | (c) xy batches |
| 10. 660 | | |
| 11. 3.2 | | |
| 12. 73 | | |

13. (a) x^3 (b) y^{10} (c) a^x
 (d) b^c (e) $4p^5$
14. (a) 144 (b) 216 (c) 186,624
 (d) 4,741,632,000
15. \$780x
16. Square root of 9, 10th root of 10, cube root of 64, xth root of y,
 4th root of 32, 5th root of 3,125, square root of 81, cube root
 of 216
17. 1,399
18. (a) 2 (b) 3 (c) 6
 (d) 3
19. (a) 4 (b) 64 (c) 6
 (d) 2 (e) 4 (f) 5
20. (a) 3 (b) 12 (c) 5
 (d) 11 (e) 5 (f) 2
 (g) 3 (h) 1
21. (a) $A + 15$ (b) 52p weeks (c) $16m + 35n$
 (d) $A - 7$ (e) $7\frac{1}{2}A = 15, A = 2$

- V 1. (a) 15a (b) $1\frac{1}{2}x$
 (b) 52b (c) $22xy$
 (c) $51.2x$ (d) 6.4s
 (d) $44\frac{1}{2}xy$ (e) $\frac{1}{2}p$
 (e) 7.91r (f) 64.16y
 (f) $20 \frac{17}{32}t$ (g) 0.99d
 (g) 21.63m
2. (a) $18a + 20b$ (b) $4x, 28$
 (b) $28.0x + 22.98y$ (c) $21.9x, 153.3$
 (c) $100.4s + 32.1t$ (d) $2\frac{3}{4}x, 15 \frac{3}{4}$
 (d) $128.36m + 16.1n$ (e) $1.217x, 8.519$
 (e) $1,389.5f + 113.06g + 45.05h$ (f) $0.47x, 3.29$
 (f) $28x + 26y + 30z$ (g) $329\frac{1}{2}x, 2,306\frac{1}{2}$
 (g) $298 \frac{15}{16}x, 2,092 \frac{9}{16}$
3. $21.5a + 16.7b + 16.0c + 26.51d$
4. $69ac + 57bc + 53cd$
5. $41 \frac{3}{4}r + 52 \frac{3}{8}s + 49 \frac{3}{8}t$
6. $922.05de + 504.45ef + 229.64fg$
7. (a) $6x + 7y$ (b) 0
 (b) $4x + yz$ (c) $0.9x + 0.1y + 5.0z$
 (c) $x + 5/2y + 5/3z$ (d) $5/8x + 3/4y + 8z$
 (d) $\frac{3}{2}ab + 1/3ac + \frac{1}{4}bc$ (e) $\frac{1}{2}$
 (f) 144
 (g) 631.1
 (h) 820.6
8. (a) $4m$
9. (a) $5a + 3b$ inches

- VI 1. $120x^2y^2$ 2. $1,440a^2b^2$
 3. $1,792a^3c^3d$ 4. $8,064x^4y^4$
 5. $1,536s^3t^3$ 6. $24a + 18b$
 7. $40x + 12y$ 8. $121x + 22t$
 9. $40d + 32e + 28f$ 10. $42x^2 + 4x^2y$
 11. $14xy + 4y^2$ 12. $21a^2 + 6a^2b + 9ab$
 13. $12x + 11y + 13z$ 14. $22x + 41y + 17z$
 15. $24x + 24y + 9z$ 16. $11x^2 + 23xy + 6xz$
 17. $2a^2b + 2ab^2 + 2a^2c + 2ac^2 + 2b^2c + 2bc^2 + 6abc$
 18. $3a^3b + 6a^2b^2 + 5ab^3$ 19. $2x^3y + 2xy^3 + x^2y^2 + x^2y^3$
 20. $x^2 + 5x + 6$ 21. $8x^2 + 16x + 6$
 22. $12y^2 + 17y + 6$ 23. $56a^2 + 44a + 8$
 24. $8b^2 + 6b + 1$ 25. $28d^2 + 61d + 21$
 26. $6a^2 + 13ab + 6b^2$ 27. $12x^2 + 10xy + 2y^2$
 28. $64x^2 + 48xy + 9y^2$ 29. $4.5d^2 + 10de + 2e^2$
 30. $20d^2 + 41de + 20e^2$ 31. $12g^2 + 64fg + 77f^2$
 32. $a^2 + ab + ac$ 33. $x^2 + 2xy + xz + yz + y^2$
 34. $a^2 + 2ab + ac + bc + b^2$ 35. $x^2 + 2xy + 2xz + 2yz + y^2 + z^2$
 36. $4x + 16, 24$ 37. $13a^2 + 27a + 12, 210$
 38. $6x^2 + 15x + 6, 162$ 39. $3x^2 + 12x + 14$
 40. $5a^2 + 38a + 77$ 41. $3x^2 + 2xy + 4x + 12y + 14 + 4y^2$

- VII
- | | | | |
|------------------|------------------|--------------------|-----------------|
| 1. $1/3$ | 2. 1 | 3. 2 | 4. $4y$ |
| 5. $2x$ | 6. $1/3a$ | 7. $\frac{1}{2}xy$ | 8. $1/a$ |
| 9. $3c/d$ | 10. $2h$ | 11. $10xy$ | 12. $4ab$ |
| 13. $2y/x$ | 14. $10bd/c$ | 15. $3m$ | 16. $13t/s$ |
| 17. $7xy^2$ | 18. $27ad^2$ | 19. $19ce/13$ | 20. $11p/5r$ |
| 21. $8x$ | 22. $12xy$ | 23. 1 | 24. $9c/d$ |
| 25. $41c^2/2a$ | 26. $69pq^2/17x$ | 27. $163yz/13x$ | 28. $4ab$ miles |
| 29. $6x, 36\phi$ | | | |
- VIII
- | | |
|---------------------------------|--|
| 1. $x + 2y$ | 2. $6ab - 3bd$ |
| 3. $6y + 4z$ | 4. $bc/a + 1$ |
| 5. $y + xz$ | 6. $3xy - 2$ |
| 7. $2x$ | 8. $4x + 2$ |
| 9. $y\frac{1}{2}z$ | 10. $a + b$ |
| 11. $3m^2 + 2n^2$ | 12. $4r^2 + 3s^2$ |
| 13. $7b - 4c$ | 14. $7p - 35/9$ |
| 15. $3b - 4a$ | 16. $2x + 2y + 2x$ or $2(x + y + z)$ |
| 17. 2 | 18. $x^2 + 2$ |
| 19. $2x + 10 + 10/x$ | 20. $3x^2 + 9x + 6$ or $3(x^2 + 3x + 2)$ |
| 21. $a\frac{1}{2}b - 3c$ | 22. $x + 2y + 3xy$ |
| 23. $3x^2 + 5x - 1$ | 24. $16 - 8y$ or $8(2 - y)$ |
| 25. $2y + 2z$ | 26. $16b + 2c$ |
| 27. $7ab + 7b^2$ or $7b(a + b)$ | 28. $2/5(x + y)$ |
| 29. $5x, 11x^2 + x - 1$ | |
- X
- | | |
|-------------------------------------|--------------------------------------|
| 1. (a) 18 positive | (b) 1 positive |
| (c) 11 negative | (d) 7 positive |
| (e) 8 positive | (f) 9 negative |
| (g) 9 positive | (h) 6 positive |
| (i) 10 negative | (j) 5 positive |
| (k) 7 positive | (l) 6 negative |
| (m) 10 negative | (n) 3 positive |
| (o) 4 positive | (p) 9 negative |
| (q) 19 positive | (r) 10 negative |
| 2. (a) $+\$9.98 - \$5.75 = +\$4.23$ | (b) $+\$13,000 - \$7,000 = +\$6,000$ |
| (c) $+\$50 - \$20 = +\$30$ | (d) $+\$110 - \$56 = +\$54$ |
| (e) $-\$23.50 + \$35.10 = +\$11.60$ | (f) $+\$450 - \$150 = +\$300$ |
| 3. (a) +5 yards | (b) +3 points |
| (c) +300 feet | (d) $-\$25$ |
| (e) $-\$3.50$ | (f) $+\$1,300$ |
- XI
- | | | |
|-----------------|---------------|-------------------------|
| 1. (a) +111 | (f) +9x | 3. (a) $9x + 12y + 17z$ |
| (b) -35 | (g) +15abc | (b) $-39r - 16s - 24t$ |
| (c) $-\$25$ | (h) $-61xy^2$ | (c) $-59m + 63n + 50p$ |
| (d) +40 marbles | (i) +30a | (d) $-21x^2y + 21xy^2$ |
| (e) -15° | (j) +40ef | (e) $-15e - 19f + 21g$ |
- XII
- | | | | |
|--|----------|---------------------|--------------|
| 1. (a) +7 | (b) +1 | (c) -4 | (d) 0 |
| (e) -2 | (f) +9 | (g) -1 | |
| 2. (a) $+\$15$ | (b) -5x | (c) $-x^2$ | (d) $-0.3xy$ |
| (e) $+1\frac{1}{4}f$ | (f) +18b | (g) $+2\frac{1}{5}$ | (h) +11r |
| (i) $+8\frac{3}{4}x$ | (j) -10n | | |
| 3. $+17 - 18 = -1$, one floor down | | | |
| 4. $-8a - 2b + 3c$, -8 | | | |
| 5. $-10x + 8y - 2z$, 4 | | | |
| 6. $+3/4r - 3s + 1\frac{3}{4}t$, 0 | | | |
| 7. $-x^2 - 2x + 4$, +1 | | | |
| 8. $-3ab + 2a + 3c + 2d + 9ac$, 40 | | | |
| 9. $+\$29.50$ | | | |
| 10. $-x^2 - 12xy + 7x + 2y^2 + 15x^2y^2 + 7$ | | | |

- XIII
- $+6$
 - $+6.1a$
 - $-10x^2y$
 - $+10x$
 - $+xy$
 - $-11y$
 - $-8abc$
 - $11s - 7t$
 - $-4mn + 2p^2 + 2q^2$
 - $7a - 9b + 11c$
 - $+12d^2e + 6f^2g$
 - $3x^2 + 6xy - 8y^2$
 - $-11x$
 - $-26abc$
 - $-32pm$
 - $+16ab$
 - $-8x^2y^2$
 - $+2xyz$
 - $-9t^2$
 - $+4.5mn^2$
 - $-45p^2$
- XIV
- $5a - b$
 - $-11x^2 + 16z^2$
 - $-20x$
 - $rs - 2st - 2rt$
 - $(-x - y) + (-4a + 2b)$
 - $(-ab + bc) - (3ad - 4ac) + d^2$
 - (a) -13
 - (c) $+28$
 - (b) $-x - 7xy + 21y$
 - (d) $-x^2 - 1 \frac{1}{6}xy + 1 \frac{1}{6}y^2$
 - $-5x + 15y$
 - $8ab - 7cd$
 - $m^2 - 2mn$
 - $n^2 - 3w^2 - 3wx - 3x^2$
 - $(+7m - n) - (-31 - 4k) + 6p$
 - 58
 - (b) $+81$
 - (a) $-7x^2 + 8x + 7$
 - (c) $-10a^2 - 4b^2 + c^2$
 - $4(-x - y + z)$
- XV
- $+16$
 - -8
 - -270
 - -210
 - (a) $-abc$
 - $-20x^3y^3$
 - $-m^9n^9$
 - (a) $+1$
 - $+11$
 - (a) $x^3 + x^2 - 2x$
 - $a^2b^2 - 9$
 - $3x - 5y - 4xy$
 - $(xy + 40 - 8y - 5x)$ cents
 - $a^3 + 2a^2 + a^2b - 2a^2c + 2c^2 + ac^2 + a + 2ab - 4ac + b - 2bc - c - abc$
 - $m^3 - mn^2 - 5m^2 + 5n^2$, 12,500 miles
 - William \$4,500, Chris \$2,500, Paul \$2,000, David \$1,000
 - $-6x^3 + 296x^2 + 216x - 800$
 - Left: $\$(6x - 70)$, \$1.70
 - -20
 - -36
 - $+231$
 - $-8a^2b^2c^2$
 - -8
 - $-x^9$
 - $+1$
 - $+5$
 - $x^2 - y^2$
 - $-16n$
 - $2m^2 + 2n^2$
 - $+30$
 - $+210$
 - $-1,440$
 - $+27ab^6$
 - $-x^6y^3$
 - $+y^4$
 - 0
 - 0
 - $x^2 - 2x + 1$
 - $+a + 1$
- XVI
- $x + 2y$
 - $y - xy$
 - $-x^2 - 6x + 3$
 - $9x^2y - 12y$
 - $-3a^3bc + 4ab$
 - (a) $-x + 2y$
 - $4s^2t^2 + 3st^2 + 11st$ (Text should be $-16s^3t^2$.)
 - $+3xz^2 - 7yz + 9z$
 - (a) $6mn - 3n + 2m$
 - $29x^2 - 21y^2 + 15xy$
 - $-57x^2y - 33y + 19x$
 - (a) $x + 2y + 2$
 - $2x^2 - x + 2$
 - $x - x^2 - y + y^2$
 - $3x^4 - 2x^3 + 7x^2$
 - $\$(50x^2 - 75x - 5 \frac{5}{9})$
 - $\$(2x^3y^3 - 3xy - 1)$
 - $(7a^4b^3 - 10b - 3)$ miles
 - $27m^2n - 11m - 17$
 - $42b^3 - 21b^2 - 9b$ or $3b(14b^2 - 7b - 3)$
 - $\$250x$, $10 - x$ events
 - $-4a - 5c$
 - $-xy + x^2y$
 - $-4x^2 + 3x + 4y$
 - $4xy - 3x^2 - 5$
 - $-4b + 2a$
 - $-16s^3t^2$
 - $-1p^2 + p$
 - $-7a^2b + 5abc - 3c^2$
 - $-8r^3 + 11s - 7r^2$
 - $5b - 3ac + 4ab - 5a^2bc^2 - 3a$
 - $4mn - 1 - 2n + 6m^2/n - 3m^2$
 - $a + b - x + y$
- XVII Equations with asterisks included in chapter heading.

- | | | | |
|-------|----------------------|----------------|-----------------------|
| XVIII | 1. 150 miles | 2. 2.6 miles | 3. 200 miles per hour |
| | 4. 3 feet per second | 5. 4 seconds | 6. 579.1875 seconds |
| | 7. 16 feet | 8. 64 feet | 9. 144 feet |
| | 10. 256 feet | 11. 400 feet | 12. 576 feet |
| | 13. 784 feet | 14. 1,024 feet | 15. 1,296 feet |
| | 16. 1,600 feet | 18. 77°F | 19. 104°F |
| | 20. 50°F | 21. 32°F | 22. 10°C |
| | 23. 5°C | 24. 38 1/3°C | 25. 3 1/3°C |
| | 26. 4 amps | 27. 0.5 amps | 28. 56 ohms |
| | 29. 6 volts | 30. 1.5 volts | |

- XIX
- 0, 2, 6, 8, 10 false; 4 true; {4}
 - all false; \emptyset
 - 0, 2, 4 true; 6, 8, 10 false; {0,2,4}
 - 8, 10 true; 0, 2, 4, 6 false; {8,10}
 - {5}
 - {11}
 - {10}
 - {16,17,18, ... }
 - {1,2,3,4,5,6}
 - {1,2,4,5,6, ... }
 - {8}
 - {4}
 - {5,6,7, ... }
 - {2}
 - {1,2,3, ... }
 - {1,2,3, ... }
 - {10,11,12, ... }
 - {1,2,3,5,6,7, ... }
 - {1,2}
 - \emptyset
 - $x + 7 > 10$
 - $x \neq 20$
 - $x + 5 \leq 11$
 - $16 + x < 24$
 - $4x \leq 25$
 - \emptyset
 - $26 - x \geq 15$
 - $x + 7 \leq 20$
 - {4,5,6, ... }, {1,2,3, ... 18,19,21,22, ... }, {1,2,3,4,5,6}, {17,18, ... 23}, {1,2,3, ... 6}, \emptyset , {1,2,3, ... 11}

- XX
- $\{x \in U \mid x + 7 = 12\}$
 - $\{x \in U \mid x - 4 = 7\}$
 - $\{x \in U \mid x + 11 = 21\}$
 - $\{x \in U \mid x + 15 > 30\}$
 - $\{x \in U \mid x + 3 \leq 9\}$
 - $\{x \in U \mid 4 + x \neq 7\}$
 - $\{x \in U \mid 3x = 24\}$
 - $\{x \in U \mid 4x + 1 = 17\}$
 - $\{x \in U \mid x + 11 > 15\}$
 - $\{x \in U \mid 4 - x = 2\}$
 - $\{x \in U \mid x + 3 = 3 + x\}$
 - $\{x \in U \mid x + 1\frac{1}{2} = 1\frac{1}{2} + x\}$
 - $\{x \in U \mid 9 + x \geq 19\}$
 - $\{x \in U \mid 5x \neq 20\}$
 - $\{x \in U \mid 9x + 9 = 9\}$
 - $\{x \in S \mid x + 7 > 10\}$
 - $\{x \in S \mid x \neq 20\}$
 - $\{x \in S \mid x + 5 \leq 11\}$
 - $\{x \in S \mid 16 + x < 24\}$
 - $\{x \in S \mid 4x \leq 25\}$
 - \emptyset
 - $\{x \in S \mid 26 - x \geq 15\}$
 - $\{1,3,5\}$
 - \emptyset
 - $\{1,7,13\}$
 - $\{5,11,17\}$
 - $\{3,9\}$
 - $\{1,3\}$
 - $\{13,23,33,43\}$

Figuring for Fun

- Let x = distance; 1,210 miles
- 21 and 12
- Clockwise: Robert (Treasurer), Peter, John, Andy, Adolph (Secretary), Nelson, Paul, Abie

CHAPTER 6 - RATIO AND PERCENTAGE

- I
- 78/102, 13/17
 - 75/125, 3/5
 - 64/104, 8/13
 - 121/165, 11/15
 - 108/156, 9/13
 - 51/153, 1/3
 - $\frac{1}{2}$
 - $\frac{1}{2}$
 - 1 1/3
 - 50/77
 - 5/8
 - 3/4
 - 7/12
 - 17/100
 - 11/18
 - $\frac{1}{4}$
 - 1 5/16
 - $1\frac{1}{2}$
 - 1 5/22
 - 3
 - 0.5:1, 0.625:1, 0.583:1, 0.61:1, 1.3125:1, 1,227:1
 - 18, 12

23. 24, 30
24. 110, 11
25. 900, 9
26. 32°F, 41°F, 50°F, 59°F, 68°F, 71.6°F, 77°F, 122°F, 167°F
27. 1 1/9°C, 10°C, 23 8/9°C, 35°C, 65°C, 80°C, 93°C
28. 63¢ per dozen
29. 22 miles per gallon
30. \$2.65 per hour
31. 57 miles per hour
32. 7 1/2 hours per day
33. \$7.50 per boy
34. 52 hours
35. Total students in each class.
36. 2:1, 6:5, 5:2, 9:5, 7:3

- II 1. \$50
2., 3., and 4. Follow figure 6-6.

- III
- | | |
|--|------------------------------|
| 1. 7/100 | 2. 42/100, 21/50 |
| 3. 37/200 | 4. 1 1/4 |
| 5. 31/200 | 6. 1 3/4 |
| 7. 3 1/2 | 8. 21/200 |
| 9. 1 1,011/2,000 | 10. 2/3 |
| 11. 28% | 12. 44% |
| 13. 46% | 14. 34% |
| 15. 104% | 16. 102% |
| 17. 30% | 18. 70% |
| 19. 75% | 20. 25% |
| 21. 140% | 22. 260% |
| 23. 305% | 24. 32 1/3% |
| 25. 150% | 26. Tom 85% against John 84% |
| 27. Same, 88% | 28. 85%, 95%, 15%, 5% |
| 29. 40% | |
| 30. 3/5, 60%, 2/25, 8%, 16/25, 64%, 14/25, 56%, 3/25, 12%, 4/25, 16% | |

- IV
- | | | |
|----------------|---------------|----------------|
| 1. 25% | 2. 87 1/2% | 3. 1 1/2% |
| 4. 25% | 5. 62 1/2% | 6. 137 1/2% |
| 7. 300% | 8. 170% | 9. 162 1/2% |
| 10. 255% | 11. 42 6/7% | 12. 188 8/9% |
| 13. 817 11/17% | 14. 79 69/98% | 15. 172 12/29% |
| 16. 815 5/13% | 17. 728 4/7% | 18. 118 2/11% |
| 19. 275 25/41% | 20. 866 2/3% | 21. 87 1/2% |
| 22. 133 1/3% | 23. 663 7/11% | 24. 76 8/17% |
| 25. 207 9/13% | 26. 312 1/2% | 27. 914 2/7% |
| 28. 418 2/11% | 29. 52% | 30. 464 12/17% |
| 31. 372.73% | 32. 53.85% | 33. 53.33% |
| 34. 52.94% | 35. 209.09% | 36. 152.38% |
| 37. 490% | 38. 152.94% | 39. 72% |
| 40. 740% | | |

V	<u>PER CENT</u>	<u>HUNDREDTHS</u>	<u>FRACTION</u>
1.	78%	78	0.78
2.	31%	31	0.31
3.	8 1/4%	8 1/4	0.0825
4.	7.5%	7.5	0.075
5.	94.75%	94.75	0.9475
6.	3 2/3 %	3 2/3	0.036
7.	41 3/8%	41 3/8	0.41375
8.	79 3/8%	79 3/8	0.79375

	<u>PER CENT</u>	<u>HUNDREDTHS</u>	<u>FRACTION</u>
9.	17 3/4%	17 3/4	0.1775
10.	17.02%	17.02	0.1702
11.	79 3/8%	79 3/8	0.79375
12.	82 3/10%	82 3/10	0.823
13.	89 8/9%	89 8/9	0.898
14.	17 2/7%	17 2/7	0.172857
15.	8 9/10%	8 9/10	0.089
16.	7 3/11%	7 3/11	0.0727
17.	99 9/10%	99 9/10	0.999
18.	152.75%	152.75	1.5275
19.	49 49/50%	49 49/50	0.4998
20.	83 2/9%	83 2/9	0.832
21.	59 9/13%	59 9/13	0.5969
22.	87 11/13%	87 11/13	0.87846
23.	43 4/7%	43 4/7	0.4357
24.	176 7/9%	176 7/9	1.767
25.	105.57%	105.57	1.0557
VI			
1.	7/40	2.	3 73/400
3.	297/400	4.	251/300
5.	871/1,100	6.	83.3%
7.	18.5%	8.	111.1%
9.	17.6%	10.	61.5%
11.	71.4%	12.	36.4%
13.	0.735	14.	0.0725
15.	0.0090243	16.	0.07429
17.	0.00912087	18.	0.008857
19.	0.00890	20.	0.00745
21.	11.6%	22.	132.9%
23.	74.2%	24.	87.5%
25.	11.5%	26.	301%
27.	200.1%	28.	13%
29.	1,302%	30.	13.2%
31.	707.5%	32.	1.5%
33.	73.125%	34.	79 1/3%
35.	330%	36.	2/25, 0.08, 8%
37.	7/90, 0.078, 7 7/9%	38.	1/22, 0.045, 4 6/11%
39.	5/62, 0.081, 8 2/31%	40.	95/1,038, 0.092, 9 79/519%
41.	35/403, 0.087, 8 276/403%	42.	16/247, 0.065, 6 118/247%
43.	110/1,312, 0.083, 3 416/1,323%	44.	3/50, 0.06, 6%
45.	3005,057, 0.059, 5 4,715/5,057%	48.	\$312.38
49.	\$886	50.	\$1,306.07
51.	\$1,744.40	52.	\$310
53.	\$711	54.	\$362.61
55.	\$3,319.26	56.	\$4,637.00
57.	\$5,30.25		

VII	<u>BASE</u>	<u>RATE</u>	<u>PERCENTAGE</u>
1.	48	?	44
2.	75	80	?
3.	1,500,000	125	?
4.	20	20	?
5.	32	75	?
6.	?	80	20

	<u>BASE</u>	<u>RATE</u>	<u>PERCENTAGE</u>
7.	?	60	9
8.	390	?	105
9.	575	?	125
10.	475	75	?

VIII	1.	96.88	2.	156.25
	3.	196.56	4.	22.81
	5.	322.32	6.	43.2
	7.	28.08	8.	69.67
	9.	255	10.	19.44
	11.	30.62	12.	752.94
	13.	3.27	14.	26.70
	15.	78.30	16.	57.25
	17.	53.49	18.	463.5
	19.	31.02	20.	76.25
	21.	\$50.94	22.	44
	23.	24	24.	\$118.75
	25.	\$2.50, \$1.50, \$6.00	26.	\$139.50
	27.	\$2,172.50	28.	\$275,084.40, \$1,100,337.60
	29.	2,592		
	30.	\$22.50, \$18.75, \$12.50, \$7.50, \$4.75, \$9.00		
	31.	60		
	32.	\$1,875,000		

IX	1.	60, 30, 20		
	2.	90, 60, 15		
	3.	476, 340, 85		
	4.	250, 66 2/3		
	5.	120, 24		
	6.	420, 54 18/23		
	7.	33 1/3		
	8.	10 10/13, 8 3/4		
	9.	15, 12		
	10.	86 2/3, 28 8/9, 10 5/6		
	11.	\$5, \$16.67		
	12.	\$36.16		
	13.	350, 175, 46 2/3, 28		
	14.	\$916.67, \$161.76, \$206.25, \$125		
	15.	1,000, 1,250, 1,833 1/3, 4,166 2/3		
	16.	\$37,500		
	17.	25		
	18.	15		
	19.	\$9,462.16		
	20.	\$2,650		
	21.	16,083,000		
	22.	\$265, \$150, \$12.50, \$180		
	23.	\$8,803.60		
	24.	\$1,100		
	25.	\$1,000		
	26.	\$300,000		
	27.	4,056,400		
	28.	\$6,855		
	29.	Original debt: \$120, Fee: \$19.20		
	30.	135 5/13 lb.		

X	1.	6.67%, 9.09%, 18.18%, 41.67%, 63.64%		
	2.	45.83%, 26.67%, 82.5%, 125%, 173.33%		
	3.	11.41%, 34.39%, 89.89%		
	4.	37.5%, 83%, 120%		
	5.	21.43%, 120%, 111.43%		
	6.	50%, 24%, 16.52%, 7.74%		
	7.	25%, 18.75%, 15%, 12.5%, 100%		
	8.	197.78%, 178%, 89%, 35.39%		
	9.	7.33%, 4.89%, 3.67%		
	10.	19.29%, 67.5%, 135%		
	11.	8.33%		

12. 91.67%
 13. 26.92%
 14. 21.74%
 15. 8.57%, 7.14%, 8%, 7.02%, 7.52%
 16. 20.24%, \$850
 17. 1.5%
 18. January \$150, February \$340, March \$292, Average \$260.67
 19. \$136.37
 20. \$237.50, \$387.50, 55%
 21. \$620, \$896
 22. \$2,142.86
 23. Yes, \$1,000 more
 24. Lower by \$6,250
 25. 6,400,000 total; 1,664,000 women; 704,000 in agriculture
 26. \$50.78, \$287.72
 27. \$242.23
 28. \$37.08
 29. 55, \$41.25
 30. \$172.25, 24.53%
 31. 11.33, 1.45, 6.50, 7.97, 8.18, 29.71, 6.32, 8.30
 5.77, 11.61, 2.86, 100.00%

XI 1. 25%
 2. Figures reversed: 21 is 50% greater than 14
 3. 25%
 4. 150%
 5. 66 2/3%
 6. 66 2/3%
 7. 150%
 8. 75%
 9. 90%
 10. 776.19%
 11. 20%
 12. Figures reversed: 14 is 33 1/3% smaller than 21
 13. 20%
 14. 60%
 15. 40%
 16. 40%
 17. 60%
 18. 42.86%
 19. 47.37%
 20. 88.49%
 21. 54, 78, 114
 22. 19, 171, 722
 23. 72, 55
 24. \$35
 25. \$21.88
 26. \$129.68
 27. \$164.37
 28. \$112.39
 29. \$164.94
 30. \$70.52
 31. \$2.97
 32. 0
 33. \$7.34
 34. \$9.62
 35. \$785.48
 36. Cody, 24.76% larger
 37. 16.67%
 38. 25%
 39. Population percentages: 2.57%, 0.58%, 4.11%, 3.38%, 28.67%
 34.13%, 5.07%, 5.17%, 7.13%, 9.00%
 0.07%, 0.12% (two largest numbers increased
 by 0.01 to total 100.00%)
 40. \$8,307.45 originally in account; \$4,486.02 left.

- XII
- | | |
|---|---|
| 1. $z > 5$ | 2. $z = 4$ |
| 3. $z \neq 7$ | 4. $z < 9$ |
| 5. $z > 71$ | 6. $x \neq 87$ |
| 7. $x > 13$ | 8. $x < 70$ |
| 9. $x = 4$ | 10. $x > 17$ |
| 11. $x < 2$ | 12. 5, 6, 7 |
| 13. 3, 4 | 14. 3, 5, 7 |
| 15. 4, 6 | 16. $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$ |
| 17. 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$ | 18. 1, 2 |
| 19. 1 | 20. 2 |
| 21. \emptyset | 22. 1, 2 |
| 23. 2 | 24. 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$ |
| 25. {2, 3, 5, 7, 11, 13, 17, 19} | 26. \emptyset |
| 27. {January, June, July} | |
| 28. {Nova Scotia, New Brunswick, Newfoundland, Northwest Territories} | |
| 29. {119, 102, 85, 68, 51, 34, 17} | |
| 30. {April, June, September, November} | |
| 31. The set between $\frac{1}{2}$ and $3\frac{1}{2}$ containing all multiples of $\frac{1}{2}$. | |
| 32. The set of the prime numbers between 1 and 20. | |
| 33. The set of even numbers that divide 12 exactly. | |
| 34. The set of even numbers between 10 and 16 inclusive. | |
| 35. The set of the days of the week with the first letter T. | |
| 36. The set of even numbers between 2 and 8 inclusive. | |
| 37. The set of all the even prime numbers. | |
| 38. The set of the odd numbers less than 10. | |
| 39. The set of all the proper fractions with the numerator and denominator formed with the digits 1 to 4 inclusive. | |
| 40. The set of capital letters of the English alphabet. | |

Figuring for Fun

- 481 $\frac{1}{2}$ feet
- (a) From 8, fill 3, and empty into 5; fill 3 and pour 2 into 5. (2-5-1)
(b) Pour 5 into 8. (7-0-1)
(c) Pour 3 into 5. (7-1-0)
(d) From 8, fill 3, and pour into 5. (4-4-0)

CHAPTER 7 - MENSURATION

- I
- 2 $\frac{8}{9}$ yd., 2 $\frac{1}{18}$ yd., 26 yd., 12 $\frac{1}{3}$ yd., 151.25 yd., 1,760 yd., 2,640 yd., 2,024 yd.
 - 5 $\frac{1}{4}$ ft., 13,200 ft., 7.63 $\bar{6}$ ft., 6,160 ft., 48 ft., 0.25 ft., 1,897.5 ft., 35 ft., 7,590 ft., 8,040 ft.
 - 320 rd., 1 $\frac{9}{11}$ rd., 2 $\frac{28}{33}$ rd., 2 $\frac{17}{18}$ rd., 1,472 rd., $\frac{2}{11}$ rd., 3,209 $\frac{1}{11}$ rd., 1,610 $\frac{10}{11}$ rd.
 - 36 widths
 - 125 yd., \$90.00
 - 44 $\frac{1}{8}$ ft.
 - $\frac{1}{4}$ mi.
 - 11.36 ft., 1,594 yd., 154.3 $\bar{6}$ rd., 2.35 mi.
 - 412.5 ft., \$171.88
 4. $\bar{7}$ yd.
- II
- | | |
|------------------------------|-----------------------|
| 1. (a) 376 pt. | (b) 119 gi. |
| (c) 19.1875 lb. | (d) 4 ton 306 lb. |
| (e) 3 gal. 3 qt. 1 pt. 3 gi. | (f) 9 gal. 2 qt. |
| (g) 6 long tons 344 lb. | |
| 2. (a) 496 pt. | (b) 166 gi. |
| (c) 261 gi. | (d) 4 pk. 1 qt. 1 pt. |
| (e) 9 gal. 2 qt. 1 pt. | |
| 3. (a) 144 oz. | (b) 232 oz. |
| (c) 17 bu. 2 pk. 1 pt. | (d) 7 cwt. 93 lb. |
| (e) 1 cwt. 86 lb. 3 oz. | |

4. 8 lb. 5.28 oz.
5. $7\frac{1}{2}$ lb., 15 lb.
6. 120.05 %, 83.3%
7. 76.47%
8. 16.7% less, 20.05% more (using 1 = 0.833)

- III
- | | |
|---|---|
| 1. 25 yd. $2\frac{1}{4}$ in. | 2. 47 yd. 4 $\frac{3}{8}$ in. |
| 3. 11 cwt. 54 lb. 15 $\frac{1}{8}$ oz. | 4. 33 cwt. 79 lb. $8\frac{1}{2}$ oz. |
| 5. 1 ft. 11 in. | 6. 7 yd. 1 ft. 10 $\frac{3}{4}$ in. |
| 7. 33 cwt. 81 lb. $13\frac{1}{4}$ oz. | 8. 69 lb. $13\frac{1}{2}$ oz. |
| 9. 1 gal. 2 qt. 1 pt. | 10. 49 min. 50 sec. |
| 11. 819 bu. 2 pk. 2 qt. $\frac{3}{4}$ pt. | Left out of 821: 1 bu. 1 pk. 1 gal.
1 qt. $1\frac{1}{4}$ pt. |
| 12. 11 hr. $31\frac{1}{2}$ min. | |

- IV
- | | |
|---------------------------------------|---------------------------------------|
| 1. 34 yd. 1 ft. 6 in. | 2. 19 yd. 1 ft. $7\frac{1}{2}$ in. |
| 3. 102 yd. 1 ft. $11\frac{1}{4}$ in. | 4. 172 yd. 2 ft. 9 in. |
| 5. 32 hr. 52 min. 8 sec. | 6. 143 hr. 55 min. 3 sec. |
| 7. 33 cwt. 56 lb. 9 $\frac{3}{4}$ oz. | 8. 144 cwt. 29 lb. $6\frac{1}{4}$ oz. |
| 9. 52 gal. 3 qt. 1 pt. | 10. 188 gal. $\frac{1}{4}$ pt. |
| 11. 34 bu. 3 pk. 1 qt. | 12. 125 bu. 1 gal. |
| 13. 8 ft. 10 in. | 14. 5 ft. 6 in. |
| 15. 2 ft. 8.23 in. | 16. 2 yd. 1 ft. 8 $\frac{3}{5}$ in. |
| 17. 4 yd. 1.68 in. | 18. 2 hr. 50 min. $7\frac{1}{2}$ sec. |
| 19. 7 hr. 18 min. 49 sec. | 20. 40 lb. 3 $\frac{1}{9}$ oz. |
| 21. 68 lb. 9 oz. | 22. 2 qt. $2\frac{1}{2}$ gi. |
| 23. 1 gal. 2 qt. 1 pt. 2 gi. | 24. 3 pk. 1 gal. 3 qt. 1 pt. |
| 25. 46 lb. 2 oz. | 26. 10, 7 in. |
| 27. 208 dresses | 28. 63 hr. 55 min. |
| 29. 4 full weeks | 30. 32 slices |

- V
1. (a) 12 ft., 9 sq. ft.
 - (b) 11 ft., 7 sq. ft. 81 sq. in.
 - (c) 17 in., 18 $\frac{1}{16}$ sq. in.
 - (d) 54 m., 182 $\frac{1}{2}$ sq. m.
 - (e) $68\frac{1}{2}$ rd., 1 ac. 133 $\frac{17}{64}$ sq. rd.
 2. (a) 3 ft., 81 sq. in.
 - (b) 15 in., 5 ft.
 - (c) 34 yd. 2 ft., 75 sq. yd. 1 sq. ft.
 - (d) 2 yd. 2 ft., 7 sq. yd. 1 sq. ft.
 - (e) 3 ft. 4 in., 4 yd. 1 ft. 8 in.
 3. 492 posts
 4. 12.50 acres
 5. 900 sq. yd., 120 yd.
 6. 361 complete tiles, 34 tiles each tile cut in five 2-inch strips;
\$49.37.
 7. 1,804 sq. yd., \$7,667; 28 $\frac{13}{18}$ sq. yd.

- VI
- | | |
|----------------------------|-------------------------|
| 1. (a) 2 yd. 1 ft. 6 in. | (b) 10 yd. 2 ft. 6 in. |
| (c) $9\frac{1}{2}$ yd. | (d) 53.38 ft. |
| (e) 64 rd. | |
| 2. (a) 10 in., 6 sq. in. | (b) 13 in., 234 sq. in. |
| (c) 5 yd., 16.4 yd. | (d) 3.4 in., 20.4 in. |
| (e) 7.9 rd., 21.33 sq. rd. | |
| 3. 176 yd., \$5,313 | |

4. 3,600 tiles, \$216.00
5. 935 lb.
6. 3,291,200 sq. yd.
7. 18 pints
8. \$550
9. Square lot, 83 $1/3\phi$, 80 ϕ
10. 24ab ft.
11. 60 desks, 10 in each row, 6 rows (width should be 48 ft.)
12. (46xy - 6) ft.

- VII
1. 9, 18
 2. (a) 59.64 sq. in. (b) 475 sq. in. (c) 17.71 sq. ft.
 3. \$55.00
 4. 32 in., 24 in., 16 in.
 5. 17,424 sq. yd.

- VIII
1. (a) 125.6 in., 8 sq. ft. 104 sq. in.
 (b) 15.7 in., 19.625 in.
 (c) 14.444 in., 16.61 sq. in.
 (d) 4 yd. 1 ft. 1 in., 1 sq. yd. 4 sq. ft. 90 $\frac{1}{2}$ sq. in.
 (e) 14 yd. 1 ft. 11.52 in., 17 sq. yd. 123.84 sq. in.
 2. (a) 1 ft. 8 in., 5 ft. 2.83 in., 2.18 sq. ft.
 (b) 4 ft. 6 in., 28.27 ft., 9,160.91 sq. in.
 (c) 6.68 ft., 13.37 ft., 140.19 sq. ft.
 (d) 0.50 in., 1.57 in., 0.20 sq. in.
 (e) 2 yd. 2 ft. 7.25 in., 18 yd. 0.74 in., 232.58 sq.ft.
 (f) 25.46 rd., 50.93 rd., 61, 601.75 sq. yd. (using 25.46)
 3. 3,981 miles
 4. 706 $\frac{1}{2}$ sq. yd., 320.28 ft.
 5. 111 revolutions; 126 trips; 13,986 revolutions per wheel
 6. 169,56 sq. ft.
 7. 3 sq. yd. 6 sq. ft. 24 sq. in.
 8. 1,740 sq. yd. 5.62 sq. ft., 535.5 ft., 344 sq. yd. 3.96 sq. ft., 172.22 yd.
 9. 1,786 sq. ft. 4.5 sq. in., 29.78 ft.
 10. 0.53 ϕ , 1.06 ϕ . Better buy: two 6-inch pancakes.
 11. Area courtyard, 625 sq. ft.; area paved, 596.74 sq. ft.; cost, \$1,842.50, 67 sq. yd.
- IX
1. (a) 3 in. (b) 2 yd. (c) 5 ft. (should be 13 cu. yd. 8 cu. ft.)
 2. 79,380 cu. in.
 3. 11 ft.
 4. 9 ft. 8 in.

5. 4 ft. 6 in.
6. 3 ft. 3 in.
7. 9 ft.
8. 26 cu. ft. 972 cu. in.
9. 11 ft.
10. 40 cu. ft. 1,080 cu. in.
11. 700 $\frac{7}{8}$ cu. ft., \$1,051.31
12. 1 cu. ft. 1,512 cu. in.; 12 in. wide, 18 in. long, 15 in. high

- X
1. See Text.
 2. $d = 12$ ft., $c = 37$ ft. 9 in., $A = 452$ sq. ft. 82 sq. in.,
 $V = 678$ cu. ft. 1,481 cu. in.
 3. $r = 24$ ft. 6 in., $d = 49$ ft., $A = 4,620$ sq. ft.,
 $V = 10,375$ cu. ft. 1, 296 cu. in.
 4. $r = 1$ ft., $c = 6$ ft. 3 in., $A = 26$ sq. ft. 103 sq. in.
 $V = 10$ cu. ft. 370 cu. in.
 5. $d = 3$ ft. 6 in., $c = 11$ ft., $A = 107$ sq. ft. 36 sq. in.,
 $V = 77$ cu. ft.
 6. $r = 33$ ft. 1 in., $d = 66$ ft. 2 in., $A = 9,066$ sq. ft. 131 sq. in.,
 $V = 36,135$ cu. ft. 471 cu. in.
 7. $r = 9$ ft. 3 in., $C = 58$ ft. 2 in., $A = 1,453$ sq. ft. 82 sq. in.,
 $V = 4,235$ cu. ft. 594 cu. in.
 8. $r = 7$ ft. 10 in., $d = 15$ ft. 7 in., $A = 749$ sq. ft. 93 sq. in.,
 $V = 1,432$ cu. ft. 717 cu. in.
 9. $d = 10$ ft. 6 in., $c = 33$ ft., $A = 536$ sq. ft. 38 sq. in.,
 $V = 952$ cu. ft. 1,512 cu. in.
 10. $r = 3$ ft. 10 $\frac{1}{2}$ in., $c = 24$ ft. 4 in., $A = 319$ sq. ft. 99 sq. in.,
 $V = 436$ cu. ft. 908 cu. in.
 11. 10,799 $\frac{1}{4}$ gal.; 6 min. 52 sec.
 12. 23 haulage trucks

Figuring for Fun

1. 37.7 ft. (circumference of circle with 6 ft. radius)
2. Two 10-inch pancakes are the better buy.
3. 5.7 inches

CHAPTER 8 - PROFIT AND LOSS

I	1. \$11,000	2. \$19,000	3. \$100,000
	4. \$985,000	5. \$591,270	6. \$4,000
	7. \$5,275	8. \$19,000	9. \$358,200
	10. \$82,306	11. \$104,830.07	12. \$482,326, \$472,276
	13. \$25,243.82		
	14. \$10,362.20, \$20,724.40, \$33,916.19		
	15. \$ 1,359,359, \$1,843,587.20		

II Follow text and solutions in Workout Exercise I.

III	1. \$101.40	2. \$537.57	3. \$1,944.36
	4. \$11,289.16	5. \$12.56	6. \$2.59
	7. \$467.89	8. \$157.38	9. \$15.66
	10. \$28.75	11. 1.30	12. 1.63
	13. 1.36	14. 1.55	15. 1.58
	16. 1.48	17. 1.42	18. 1.61
	19. 1.59	20. 1.66 $\frac{2}{3}$	21. \$11.90
	22. \$2.77	23. \$7.22	24. \$8.91
	25. \$3,104.26	26. \$491.78	27. \$24.24
	28. \$869.86	29. \$653.07	30. \$17.51

1. \$27.27	2. \$3.30	3. \$6.62
4. \$18.53	5. \$288.18	6. \$2,366.22
7. \$5,512.56	8. \$6.97	9. \$676.35
10. \$46.53	11. 1.82, \$27.30	12. 1.67, \$3.31
13. 2.22, \$6.62	14. 1.72, \$18.49	15. 1.64, \$288.30
16. 1.71, \$2,367.05	17. 1.61, \$5,520.38	18. 1.47, \$7.00
19. 1.76, \$676.14	20. 1.89, \$46.30	
21. (a) \$300	21. (b) 37.04%	21. (c) 1.588
22. (a) \$3.50	22. (b) 25%	22. (c) 1.333
23. (a) \$45.65	23. (b) 22.68%	23. (c) 1.293
24. (a) \$36	24. (b) 31.17%	24. (c) 1.453
25. (a) \$4.85	25. (b) 31.09%	25. (c) 1.451
26. (a) \$10.95	26. (b) 18.02%	26. (c) 1.220
27. (a) \$3.67	27. (b) 38.04%	27. (c) 1.614
28. (a) 0.72¢	28. (b) 26.67%	28. (c) 1.364
29. (a) \$5.70	29. (b) 30.89%	29. (c) 1.447
30. (a) \$513.40	30. (b) 27.99%	29. (c) 1.389

V 1. \$1,500	2. \$1,849	3. Loss \$750
4. Loss \$51,860	5. \$34,457	6. \$31,171.87
7. \$23,418	8. \$186.35	9. \$7,814.10
10. Loss \$632		

VI Use previous solutions and follow text for statement form.

VII 1. 73.33%	2. 78.27%	3. 84.03%
4. 73.33%	5. 87.78%	6. 22.2%
7. 89.48%, 87.62%	8. 61.68%	

	9. - %	10. - %	11. - %	12. - %	13. - %
Sales	113.3	109.2	126.1	112.2	111.6
Returns	13.3	9.2	26.1	12.2	11.6
Net sales	100.0	100.0	100.0	100.0	100.0
Cost sales	73.3	78.3	84.0	73.3	87.8
Gross margin	26.7	21.7	16.0	26.7	12.2
Operating ex.	16.7	14.1	16.6	30.5	7.1
Net profit (loss)	10.0	7.6	(0.6)	(3.8)	5.1
	14. - %	15. - %	16. - %	17. - %	18. - %
Sales	100.7	100.6	100.0	100.0	100.00
Returns	0.7	0.6	-	-	-
Net sales	100.0	100.0	100.0	100.0	100.00
Cost sales	77.8	89.5	78.2	38.3	73.63
Gross margin	22.2	10.5	21.8	61.7	26.37
Operating ex.	16.0	6.2	21.0	47.5	26.41
Net profit (loss)	6.2	4.3	0.8	14.2	(0.04)

19. Y - 6.13%, W - 10.38%, Z - 13.94%, Z - 21.52%

20. Operating expenses: W - 14.4%, Y - 21.04%, Z - 25.23%, X - 54.49%
 Gross profit: W = \$43,716, X = \$19,291, Y = \$400,347, Z = \$210,242;
 W = 24.78%, Y = 27.16%, Z = 39.16%, X = 76.01%

VIII Follow Chapter 4 for graphical presentation.

Figuring for Fun

1. Take goat and leave. Come back and take wolf. Leave wolf and bring back goat. Leave goat on original side. Take cabbage and leave with wolf. Come back for goat.

2. The same

CHAPTER 9 - INVOICES, CASH AND TRADE DISCOUNTS

- I 1. May 3
 2. April 4
 3. October 10, October 30
 4. January 10, January 30
 5. 10 days or 30 days after receipt of goods.
 6. August 24
 7. September 3
 8. November 1, November 16
 9. December 12, January 11
 10. February 4, February 9, March 1
 11. \$8.75
 12. \$21.25
 13. \$2.94
 14. \$7.45
 15. \$96.60
 16. \$28.44
 17. \$2,592
 18. \$202.58
 19. \$152.10
 20. \$31,684
 21. Follow text.
 22. Due dates: July 1, July 6, July 26.
 Extensions: \$34.93, \$29.85, \$90.87, \$53.82, \$366.85,
 \$180.70, \$59.33, \$113.81.
 Total: \$930.16.
 23. \$269.85, \$139.65, \$473.70, \$179.55, \$199.75, \$143.80,
 \$1,406.30

- II 1. November 30, \$1,176; December 20, \$1,200
 2. March 27, \$11.58; May 16, \$11.70
 3. February 15, \$117.95; February 20, \$118.55; March 2, \$119.75
 4. January 5, \$12,505.05; January 10, \$12,632.65; January 20,
 \$12,760.25
 5. March 10, \$994,695; March 15, \$999,796; March 20, \$1,009,998;
 March 30, \$1,020,200
 6. November 2, \$30,273.08; November 12, \$30,427.54; November 17,
 \$30,581.99; December 17, \$30,890.90
 7. May 12, \$59.38; May 17, \$59.68; May 27, \$59.98
 8. October 14, \$436.39; October 24, \$440.85; November 23, \$445.30
 9. August 18, \$798; August 23, \$802.05; August 28, \$810.15
 10. June 10, \$75.07; June 20, \$75.83; June 30, \$76.60
 11. \$588, \$600
 12. \$6.95, \$4.68
 13. \$64.87, \$35.56, \$17.97
 14. \$3,751.52, \$2,526.53, \$6,380.12
 15. \$348,143.25, \$249,949, \$201,999.60, \$204,040
 16. \$12,109.23, \$7,606.88, \$4,587.30, \$6,178.18
 17. \$14.85, \$17.90, \$26.99
 18. \$196.37, \$132.25, \$111.33
 19. \$518.70, \$160.41, \$121.52
 20. \$52.55, \$11.38, \$11.49

- III 6. \$63.00 7. \$20.62 8. \$47.70
 9. \$717.84 10. \$24.54 11. \$10.93
 12. \$109.49 13. \$285.50 14. \$364.75
 15. \$730.63 16. \$28,370.38 17. \$414,767.09
 18. \$10.16 19. \$4.74

- IV 1. 20% 2. 25% 3. 25% 4. 33.31%
 5. 33 1/3% 6. 12 1/2% 7. 12 1/2% 8. 15%
 9. 85.45% 10. 17% 11. 19% 12. 21 1/2%
 13. 27% 14. 16 2/3% 15. 16 2/3% 16. 37 1/2%
 17. 37 1/2% 18. 34.25% 19. 17 1/2% 20. 29%

V	1.	\$504	2.	\$482.97
	3.	\$666	4.	\$2,383.59
	5.	\$4,499.55	6.	\$69,225.16
	7.	\$6,140.67	8.	\$229.24
	9.	\$58.14	10.	\$638.37
	21.	Beyo Mfg. Save \$1.12	22.	Delta. Save \$21.60
	23.	Sturdy. Better by \$10.15	24.	\$2,598.76
	25.	\$573.35, \$567.50, Save \$5.85		

VI	1.	35.2%	2.	39.25%
	3.	49.6%	4.	55.2%
	5.	46%	6.	56.8%
	7.	44.425%	8.	40.15%
	9.	34.975%	10.	42.2%
	11.	15%	12.	8½%, 25%, 20%, 10%, 8½%
	13.	10%	14.	Salvo, 1.23%
	15.	\$50.00	16.	\$53.62

VII	1.	5-3	0.9031	0.8844	0.8146	0.6982
		12½	0.8575	0.8312	0.7656	0.6562
		15-10	0.7497	0.7268	0.6694	0.5738
		20	0.7840	0.7600	0.7000	0.6000

	2.	\$22.11	3.	\$96.66	4.	\$329.65
	5.	\$454.56	6.	\$5,878.02	7.	\$41.47
	8.	\$6.83	9.	\$17.93	10.	\$248.22

VIII	1.	\$2.43	2.	\$10.63	3.	\$36.26
	4.	\$50.00	5.	\$646.58	6.	\$4.56
	7.	\$0.75	8.	\$1.97	9.	\$27.30
	10.	No problem	11.	\$135.14	12.	\$332.88
	13.	\$1,287.11	14.	\$6,630.86	15.	\$7.16
	16.	\$49.91	17.	\$1,209,748.42	18.	\$44.32
	19.	\$17.97	20.	\$0.62	21.	\$500.49
	22.	\$66.89	23.	\$10.14	24.	\$12.39
	25.	\$34,612.78				

IX	1.	\$1,080.00	2.	\$3,120.00	3.	\$1,575.00
	-20%	216.00	-15%	468.00	-15%	236.25
		<u>864.00</u>		<u>2,652.00</u>		<u>1,338.75</u>
	-10%	86.40	-10%	265.20	-10%	133.88
		<u>777.60</u>		<u>2,386.80</u>		<u>1,204.87</u>
	-5%	38.88	-10%	238.68	-5%	60.24
		<u>738.72</u>		<u>2,148.12</u>		<u>1,144.63</u>
	-2%	14.77	-5%	107.41	+11%	125.91
		<u>723.95</u>		<u>2,040.71</u>		<u>\$1,270.54</u>
	+11%	79.63	-2%	40.81		
		<u>\$ 803.58</u>		<u>1,999.90</u>		
			+11%	219.99		
				<u>\$2,219.89</u>		

	4.	\$ 700.00	5.	\$ 715.00	6.	\$2,100.00
	-15%	105.00	-15%	107.25	-25%	525.00
		<u>595.00</u>		<u>607.75</u>		<u>1,575.00</u>
	-10%	59.50	-10%	60.78	-20%	315.00
		<u>535.50</u>		<u>546.97</u>		<u>1,260.00</u>
	-5%	26.78	-10%	54.70	-5%	63.00
		<u>508.72</u>		<u>492.27</u>		<u>1,197.00</u>
	-2%	10.17	-2%	9.85	-2%	23.94
		<u>498.55</u>		<u>482.42</u>		<u>1,173.06</u>
	+11%	54.84	+11%	53.07	+11%	129.04
		<u>\$ 553.39</u>		<u>\$ 535.49</u>		<u>\$1,302.10</u>

7.	\$ 715.00	8.	\$1,449.00	9.	\$4,350.00
-15%	107.25	-15%	217.35	-10%	435.00
	<u>607.75</u>		<u>1,231.65</u>		<u>3,915.00</u>
-10%	60.78	-10%	123.16	-10%	391.50
	<u>546.97</u>		<u>1,108.49</u>		<u>3,523.50</u>
-5%	27.35	-10%	110.85	-10%	352.35
	<u>519.62</u>		<u>997.64</u>		<u>3,171.15</u>
-2%	10.39	-5%	49.88	-5%	158.56
	<u>509.23</u>		<u>947.76</u>		<u>3,012.59</u>
+11%	56.02	-2%	18.96	-2%	60.25
	<u>\$ 565.25</u>		<u>928.80</u>		<u>2,952.34</u>
		+11%	102.17	+11%	324.76
			<u>\$1,030.97</u>		<u>\$3,277.10</u>
10.	\$ 360.00	11.	\$ 900.00	12.	\$ 975.00
-20%	72.00	-15%	135.00	-15%	146.25
	<u>288.00</u>		<u>765.00</u>		<u>828.75</u>
-10%	28.80	-10%	76.50	-10%	82.88
	<u>259.20</u>		<u>688.50</u>		<u>745.87</u>
-2%	5.18	-5%	34.42	-10%	74.59
	<u>254.02</u>		<u>654.08</u>		<u>671.28</u>
+11%	27.94	-2%	13.08	-5%	33.56
	<u>\$ 281.96</u>		<u>641.00</u>		<u>637.72</u>
		+11%	70.51	-2%	12.75
			<u>\$ 711.51</u>		<u>624.97</u>
				+11%	68.75
					<u>\$ 693.72</u>

This exercise should be repeated using a single discount factor.
A slight discrepancy in the answers will result.

CHAPTER 10 - BUYING AND SELLING ON COMMISSION AND STORAGE

I	1.	\$14.84	2.	\$9.23	3.	\$0.39	4.	\$33.10	5.	\$2.40
	6.	\$4.14	7.	\$31.93	8.	\$24.45	9.	\$10.00	10.	\$27.92
	11.	20%	12.	1%	13.	1.5%	14.	2%	15.	7½%
	16.	1.25%	17.	35%	18.	45%	19.	2.5%	20.	4.5%
II	1.	\$289.14								
	2.	\$70.17								
	3.	\$95.78								
	4.	\$75.66								
	5.	\$251.75								
	6.	Beaudro, \$136.20;	Bechtel, \$164.55							
	7.	\$925								
	8.	\$97, \$119.45,	\$68, \$152.21,	\$114.20,	\$90.40					
	9.	\$129.50								
	10.	\$108.57,	\$79.08,	\$90.90						
III	1.	\$78.75	2.	\$89.20	3.	\$68.50				
	4.	\$114.50	5.	\$91.80	6.	\$327.62				
	7.	\$126.75	8.	\$117.82	9.	\$111.82				
	10.	\$117.78	11.	\$85	12.	\$80				
	13.	\$75	14.	\$70	15.	\$65				
	16.	Follow figure 10-1								
IV	1.	\$375	2.	\$1,882.50	3.	\$11.23				
	4.	\$756.50	5.	\$5,755.75	6.	\$62,918.75				
	7.	\$33,399	8.	\$23,255.10	9.	\$4,960				
	10.	\$1,055	11.	\$292	12.	\$8,974.20				
	13.	\$7,026.80	14.	\$665.29	15.	\$9,003.80				
	16.	\$1,110,195	17.	\$654,223.20	18.	\$40,483.75				
	19.	\$59,526.80	20.	\$9,620,177.53	21.	\$780				
	22.	\$832	23.	\$515	24.	\$73,478.96				
	25.	\$43,879.57								

V	1. \$580.50	2. \$626.25	3. \$135.18
	4. \$124.55	5. \$503.35.	All sold.

VI Follow text for form.

VII	1. \$1,473.90	2. \$1,448.20	3. \$561.81
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Follow text for form.

VIII	1. 25 sq. ft.	2. 30 sq. ft.	3. 52.5 sq. ft.
	4. $11\frac{2}{3}$ sq. ft.	5. 50 sq. ft.	6. 49.58 sq. ft.
	7. $49\frac{1}{2}$ sq. ft.	8. 89.83	9. 54.44 sq. ft.
	10. 28.17 sq. ft.		

IX	1. \$19.26	2. \$95.55	3. \$129.45
	4. \$9.47	5. \$6.68	6. \$49.92
	7. \$58.56	8. \$171.66	9. \$230.45
	10. \$6.66		

X	1. \$39.50	2. \$180.50	3. \$90.25	4. \$64.88	5. \$57.25
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Figuring for Fun

1. $1 + F$ must equal ten or more; Let $F = 9$. $\begin{array}{r} 9245 \\ 1023 \\ \hline 10268 \end{array}$

I must be 2 as 3, 4, and 5 are already used and 6 added to 4 would give 0 which is incorrect.

2. Magic squares can be built up in many different ways with different size squares; e.g., 3×3 , 4×4 , etc., only one of which is given here. This method uses a 5×5 square and the digits 1, 2, 3, 4 and 5 only.

1st row: Arrange the five digits in any order.

2nd row: In the first space, place the digit appearing in the 4th space in 1st row. Fill in the rest of the spaces keeping the same relative order as in 1st row.

3rd, 4th and 5th rows: In the first space, place the digit appearing in the 4th space in the row above. Complete each row keeping the same relative order of digits as in row 1.

If you are interested in other ways to build up magic squares look up some of the books on mathematics in your library.

I	1.	$39\frac{1}{4} \times \$1.50,$	$3\frac{1}{2} \times \$2.25 = \66.19	
	2.	$38\frac{1}{4} \times \$1.90,$	$5\frac{1}{2} \times \$2.85 = \88.35	
	3.	$39 \times \$1.80,$	$3\frac{1}{2} \times \$2.70 = \79.65	
	4.	$38\frac{1}{2} \times \$1.70,$	$3\frac{1}{2} \times \$2.55 = \73.95	
	5.	$39\frac{1}{4} \times \$1.50,$	$1\frac{3}{4} \times \$2.25 = \62.81	
	6.	$38\frac{3}{4} \times \$1.60,$	$6\frac{3}{4} \times \$2.40 = \78.20	
	7.	$36 \times \$1.80,$	$3 \times \$2.70 = \72.90	
	8.	$38\frac{1}{2} \times \$1.40,$	$5 \times \$2.10 = \64.40	
	9.	$40 \times \$1.75,$	$10\frac{1}{2} \times \$2.625 = \97.56	
	10.	$39 \times \$1.45,$	$5\frac{1}{4} \times \$2.17\frac{1}{2} = \67.97	

II	1.	\$61.25	2.	\$48.30	3.	\$57.05
	4.	\$52.85	5.	\$53.90	6.	\$58.80
	7.	\$87.30	8.	\$58.40	9.	\$93.00
	10.	\$79.10	11.	\$107.80	12.	\$95.15
	13.	\$51.60	14.	\$69.60	15.	\$89.05
	16.	\$69.05	17.	\$112.40	18.	\$80.05
	19.	\$116.00	20.	\$71.80		

III Follow Chapter 4 for information on graphs.

IV	1.	\$7.25	2.	\$6.85	3.	\$4.35	4.	\$5.80
	5.	\$6.45	6.	\$2.55	7.	\$4.80	8.	\$5.90
	9.	\$13.05	10.	\$3.15	11.	\$6.25	12.	\$4.00
	13.	\$5.50	14.	\$4.65	15.	\$4.85	16.	\$5.70
	17.	\$5.70	18.	\$3.25	19.	\$5.75	20.	\$9.85
	21.	\$11.30	22.	\$11.75	23.	\$0.80	24.	\$7.85
	25.	\$8.95	26.	\$6.90	27.	\$12.45	28.	\$10.05
	29.	\$14.25	30.	\$4.65				

V	1.	86¢	2.	94¢	3.	94¢	4.	94¢
	5.	78¢	6.	94¢	7.	94¢	8.	86¢
	9.	94¢	10.	86¢	11.	78¢	12.	66¢
	13.	78¢	14.	72¢	15.	72¢	16.	78¢
	17.	94¢	18.	78¢	19.	94¢	20.	94¢
	21.	94¢	22.	94¢	23.	72¢	24.	94¢
	25.	94¢	26.	94¢	27.	94¢	28.	94¢
	29.	94¢	30.	94¢				

VI	1.	\$39.67	2.	\$61.91	3.	\$41.44	4.	\$38.68
	5.	\$32.74	6.	\$47.97	7.	\$45.69	8.	\$53.80
	9.	\$44.46	10.	\$60.60	11.	\$53.02	12.	\$51.60
	13.	\$49.91	14.	\$59.05	15.	\$58.20	16.	\$58.31
	17.	\$39.91	18.	\$58.34	19.	\$41.10	20.	\$64.80
	21.	\$53.96	22.	\$43.64	23.	\$49.59	24.	\$49.83
	25.	\$42.73						

PAYROLL REGISTER - Week Ended June 20

Clock No.	Name	Department	Hours Worked					Total		Reg. Hour Rate	Total Wage	Deductions			Take Home Pay	Exemptions	
			M	T	W	T	F	Reg.	O.T.			Income Tax	Unemp. Ins.	Pens. Fund			
103	Paul Anchor	Planing	7 3/4	7 1/2	8	8	8	39 1/4	3 1/4	\$1.50	\$ 66.19	\$.86	\$ 3.31	\$ 11.42	\$ 54.77	\$1,000	
104	Ronald Muir	Planing	8	7 1/4	7 1/2	7 3/4	7 3/4	38 1/2	5 1/2	1.90	88.35	.94	4.42	12.21	76.14	2,400	
105	Seymour Brown	Sawing	8	7 3/4	8	8	7 1/4	39	3 1/2	1.80	79.65	.94	3.98	9.27	70.36	2,670	
106	Terry Jones	Sawing	8	8	7 1/2	7 1/4	7 1/2	38 1/4	3 1/2	1.70	73.95	.94	3.70	10.44	63.51	1,750	
107	Gordon Hutton	Sawing	7 1/2	7 3/4	8	8	8	39 1/4	1 3/4	1.50	62.81	.78	3.14	10.37	52.44	1,000	
108	Alfie Proctor	Finishing	7 3/4	8	7 3/4	7 3/4	7 1/2	38 3/4	6 3/4	1.60	78.20	.94	3.91	7.40	70.80	3,150	
109	Solly Tuck	Finishing	5 3/4	7 1/2	7 1/2	7 3/4	7 1/2	36	3	1.80	72.90	.94	3.64	9.38	63.52	2,100	
110	Martin Leacock	Finishing	7	7 3/4	7 3/4	8	8	38 1/2	5	1.40	64.40	.86	3.22	9.98	54.42	1,400	
111	Benny Price	Finishing	8	8	8	8	8	40	10 1/2	1.75	97.56	.94	4.88	18.87	8.69	1,000	
112	Charles Ardue	Storeroom	8	7 1/2	7 3/4	8	7 3/4	39	5 1/4	1.45	69.97	.86	3.40	7.41	60.56	2,300	
											\$751.98	\$60.15	\$9.00	\$37.60	\$106.75	\$645.23	

VII 2.

BONNY BELINDA APRON MANUFACTURERS

PAYROLL REGISTER - For the week just ended

Name	No. Aprons Completed							Rate	Total Wage	Deductions				Take Home Pay
	M	T	W	T	F	S	Total			Income Tax	Unemploy. Insurance	Savings Bond	Total	
Sally Summers	31	35	34	38	37		175	35	\$ 61.25	\$ 6.25	\$0.78	\$ 4.50	\$ 11.53	\$ 49.72
Evelyn Farmer	25	27	28	31	27		138	35	48.30	4.00	.66	4.50	9.16	39.14
Fanny Fall	30	35	29	34	35		163	35	57.05	5.50	.78	4.50	10.78	46.27
Winnie Winters	30	31	29	31	30		151	35	52.85	4.65	.72	4.50	9.87	42.98
Sarah Spring	27	31	32	31	33		154	35	53.90	4.85	.72	4.50	10.07	43.83
Alice Autumn	37	35	34	29	33		168	35	58.80	5.70	.78	4.50	10.98	47.82
									\$332.15	\$30.95	\$4.44	\$27.00	\$62.39	\$269.76

PINTO PANT MANUFACTURERS

PAYROLL REGISTER - Week ended April 18

Clock No.	Name	Parts Finished				Total Wage	Deductions				Take Home Pay	Exemptions
		M	T	W	T		Income Tax	Unemploy. Ins.	Pension 4%	Union Dues		
76	Bob Williams	23	36	33	29	27	\$ 87.30	\$ 0.94	\$ 3.49	\$0.50	\$ 76.67	\$2,600
77	Tom Jones	18	23	24	26	25	58.40	.78	2.34	.50	51.53	1,800
78	Sam Adams	23	32	37	28	37	93.00	.94	3.72	.50	82.09	2,900
79	Will Burns	26	27	31	28	29	79.10	.94	3.16	.50	64.65	1,000
80	Vic Carter	35	37	36	32	30	107.80	.94	4.31	.50	90.75	2,200
81	Carl Yule	34	29	31	32	35	95.15	.94	3.81	.50	78.15	1,350
82	Dave Welsh	20	18	22	24	23	51.60	.72	2.06	.50	47.52	2,275
83	Fred Stone	25	27	26	29	24	69.60	.94	2.78	.50	57.53	1,000
84	George Tallow	31	32	29	26	35	89.05	.94	3.56	.50	75.10	1,960
85	Ted Edwards	25	27	26	24	28	69.05	.94	2.76	.50	57.95	1,420
86	Paul Frame	34	36	35	32	38	112.40	.94	4.50	.50	94.01	2,200
87	Elwood Woods	25	24	29	31	35	80.05	.94	3.20	.50	65.36	1,000
88	Harry Vale	34	35	31	39	41	116.00	.94	4.64	.50	95.67	1,880
89	Jack Poole	25	27	24	29	30	71.80	.94	2.87	.50	62.84	2,400
\$1,180.30							\$113.50	\$12.78	\$47.20	\$7.00	\$180.48	\$999.82

XYZ COMPANY

PAYROLL REGISTER

Name	Gross Wage	Deductions					Total	Take Home Pay
		Income Tax	Unemploy. Insur.	Pension Fund	Union Dues	Bond Purchase		
Greig, Lawrence	\$ 60.00	\$ 6.05	.78	\$ 3.00	\$.50	\$ 9.00	\$ 20.33	\$ 39.67
Hamilton, Ian	70.00	3.65	.94	3.50			8.09	61.91
Harter, Paul	65.00	1.45	.86	3.25		18.00	23.56	41.44
Harrington, Paul	42.50	.25	.60	2.12	.50		3.82	38.68
Harris, Terry	49.00	4.15	.66	2.45		9.00	16.26	32.74
Hay, Richard	53.25	1.90	.72	2.66			5.28	47.97
Hayes, Walter	51.75	2.15	.72	2.59			6.06	45.69
Headley, Douglas	66.80	3.80	.86	3.34	.50	4.50	13.00	53.80
Hearn, Keith	49.50	1.90	.66	2.48			5.04	44.46
Hedley, Michael	75.20	9.05	.94	3.76		4.50	14.60	60.60
Henderson, Larry	69.80	7.85	.94	3.49			16.78	53.02
Hewett, Grant	61.35	5.40	.78	3.07	.50		9.75	51.60
Hiscock, Joel	56.40	2.20	.72	2.82	.50	.25	6.49	49.91
Hodder, John	65.80	2.10	.86	3.29	.50		6.75	59.05
Hood, Andrew	72.20	8.45	.94	3.61		1.00	14.00	58.20
Husband, Ken	63.49	1.15	.86	3.17			5.18	58.31
Jeffers, Allan	43.17		.60	2.16	.50		3.26	39.91
Jenkin, Keith	72.40	5.00	.94	3.62		4.50	14.06	58.34
Kakinom, Ed	48.70	4.00	.66	2.44	.50		7.60	41.10
Kendall, Ron	75.30	5.30	.94	3.76	.50		10.50	64.80
Killip, John	63.70	5.70	.86	3.18			9.74	53.96
Kitchin, Jack	76.40	9.25	.94	3.82		18.00	32.76	43.64
Kogut, Ed	53.48	-	.72	2.67	.50		3.89	49.59
Kong, Terry	59.95	5.85	.78	3.00	.50		10.13	49.82
Kowaluk, Robert	48.36	1.75	.66	2.42	.50	.30	5.63	42.73
	\$1,513.50	\$98.35	\$19.94	\$75.67	\$6.00	\$67.50	\$272.56	\$1,240.94

CURRENCY BREAKDOWN											
June 20, 19--											
Name	Net Salary	Bills					Coins				
		\$20	\$10	\$5	\$2	\$1	50¢	25¢	10¢	5¢	1¢
Paul Anchor	\$ 54.77	2	1		2		1	1			2
Ronald Muir	76.14	3	1	1		1			1		4
Seymour Brown	70.38	3	1					1	1		3
Terry Jones	63.51	3				3	1				1
Gordon Hutton	52.44	2	1		1			1	1	1	4
Alfie Proctor	70.80	3	1				1	1		1	
Solly Tuck	63.52	3			1	1	1				2
Martin Leacock	54.42	2	1		2			1	1	1	2
Benny Price	78.69	3	1	1	1	1	1		1	1	4
Charles Ardue	60.56	3					1			1	1
	\$645.23	27	7	2	7	6	6	5	5	5	23

1. (b)

THE TORONTO-DOMINION BANK		
TORONTO, Ontario		
CURRENCY MEMORANDUM		
June 20, 19--		
<u>Bills</u>		
27 x \$20	=	\$540
7 x 10	=	70
2 x 5	=	10
7 x 2	=	14
6 x 1	=	6
<u>Coins</u>		
6 x .50	=	3.00
5 x .25	=	1.25
5 x .10	=	.50
5 x .05	=	.25
23 x .01	=	.23
		<u>\$645.23</u>

CURRENCY BREAKDOWN

For the week just ended

Name	Net Salary	Bills					Coins				
		\$20	\$10	\$5	\$2	\$1	50¢	25¢	10¢	5¢	1¢
Sally Summers	\$ 49.72	2		1	2		1		2		2
Evelyn Farmer	39.14	1	1	1	2				1		4
Fanny Fall	46.27	2		1		1		1			2
Winnie Winters	42.98	2			1		1	1	2		3
Sarah Spring	43.83	2			1	1	1	1		1	3
Alice Autumn	47.82	2		1	1		1	1		1	2
	\$269.76	11	1	4	7	2	4	4	5	2	16

2.(b)

THE TORONTO-DOMINION BANK
TORONTO, OntarioCURRENCY MEMORANDUM
For the week just endedBills

11 x \$20	=	\$220
1 x 10	=	10
4 x 5	=	20
7 x 2	=	14
2 x 1	=	2

Coins

4 x .50	=	2.00
4 x .25	=	1.00
5 x .10	=	.50
2 x .05	=	.10
16 x .01	=	.16

\$269.76

CURRENCY BREAKDOWN April 18, 19--											
Name	Net Salary	Bills					Coins				
		\$20	\$10	\$5	\$2	\$1	50¢	25¢	10¢	5¢	1¢
Bob Williams	\$ 76.67	3	1	1		1	1		1	1	2
Tom Jones	51.53	2	1			1	1				3
Sam Adams	82.09	4			1					1	4
Will Burns	64.65	3			2		1		1	1	
Vic Carter	90.75	4	1				1	1			
Carl Yule	78.15	3	1	1	1	1			1	1	
Dave Welsh	47.52	2		1	1		1				2
Fred Stone	57.53	2	1	1	1		1				3
George Tallow	75.10	3	1	1					1		
Ted Edwards	57.95	2	1	1	1		1	1	2		
Paul Frame	94.01	4	1		2						1
Elwood Woods	65.36	3		1				1	1		1
Harry Vale	95.67	4	1	1			1		1	1	2
Jack Poole	62.84	3			1		1	1		1	4
	\$999.82	42	9	8	10	3	9	4	8	6	22

3. (b)

THE TORONTO-DOMINION BANK TORONTO, Ontario			
CURRENCY MEMORANDUM April 18, 19--			
<u>Bills</u>			
42 x \$20	=		\$840
9 x 10	=		90
8 x 5	=		40
10 x 2	=		20
3 x 1	=		3
<u>Coins</u>			
9 x .50	=		4.50
4 x .25	=		1.00
8 x .10	=		.80
6 x .05	=		.30
22 x .01	=		.22
			<u>\$999.82</u>

CURRENCY BREAKDOWN

Name	Net Salary	Bills					Coins				
		\$20	\$10	\$5	\$2	\$1	50¢	25¢	10¢	5¢	1¢
Lawrence Greig	\$ 39.67	1	1	1	2		1		1	1	2
Ian Hamilton	61.91	3				1	1	1	1	1	1
Paul Harker	41.44	2				1		1	1	1	4
Paul Harrington	38.68	1	1	1	1	1	1		1	1	3
Terry Harris	32.74	1	1		1		1		2		4
Richard Hay	47.97	2		1	1		1	1	2		2
Walter Hayes	45.69	2		1			1		1		4
Douglas Headley	53.80	2	1		1	1	1	1		1	
Keith Hearn	44.46	2			2			1	2		1
Michael Hedley	60.60	3					1		1		
Larry Henderson	53.02	2	1		1	1					2
Grant Hewett	51.60	2	1			1	1		1		
Joel Hiscock	49.91	2		1	2		1	1	1	1	1
John Hodder	59.05	2	1	1	2					1	
Andrew Hood	58.20	2	1	1	1	1			2		
Ken Husband	58.31	2	1	1	1	1		1		1	1
Allan Jeffers	39.91	1	1	1	2		1	1	1	1	1
Keith Jenkin	58.34	2	1	1	1	1		1		1	4
Ed Kakino	41.10	2				1			1		
Ron Kendall	64.80	3			2		1	1		1	
John Killip	53.96	2	1		1	1	1	1	2		1
Jack Kitchen	43.64	2			1	1	1		1		4
Ed Kogut	49.59	2		1	2		1			1	4
Terry Kong	49.82	2		1	2		1	1		1	2
Robert Kowaluk	42.73	2			1		1		2		3
	\$1,240.94	49	12	12	27	12	17	12	23	14	44

4.(b)

THE TORONTO-DOMINION BANK
TORONTO, Ontario

CURRENCY MEMORANDUM

Bills

49 x \$20	=	\$ 980
12 x 10	=	120
12 x 5	=	60
27 x 2	=	54
12 x 1	=	12

Coins

17 x .50	=	8.50
12 x .25	=	3.00
23 x .10	=	2.30
14 x .05	=	.70
44 x .01	=	.44

\$1,240.94

CHAPTER 12 - INTEREST AND DISCOUNT

I	1.	\$103.50	2.	\$258.75	3.	\$569.25
	4.	\$6.47	5.	\$8.59	6.	\$61.89
	7.	\$17.34	8.	\$546.89	9.	\$1,165.20
	10.	\$34.98	11.	\$3.05	12.	\$1,479.84
	13.	\$18,095.21	14.	\$8,797.66	15.	\$311,225.12
	16.	\$856	17.	\$15	18.	\$639
	19.	\$1,428	20.	\$19.50	21.	\$10.50
	22.	\$312,728	23.	\$738,476	24.	\$79.50
	25.	\$195.50				
II	1.	\$4.49, \$1,016.49	2.	\$3.03, \$728.43		
	3.	\$4.89, \$493.89	4.	\$7.30, \$737.48		
	5.	\$50.25, \$887.75	6.	\$0.58, \$19.78		
	7.	\$29.58, \$1,508.73	8.	\$21,048.35, \$321,739.10		
	9.	\$9.24, \$933.09	10.	\$8.83, \$4,221.31		
	11.	\$5.40, \$545.65	12.	\$0.18, \$18.02		
	13.	\$34.19, \$3,453.37	14.	\$8.27, \$336.46		
	15.	\$113.89, \$9,832.17	16.	\$12.61, \$432.78		
	17.	\$1.80, \$31.75	18.	\$1,255.43, \$130,017.91		
	19.	\$302.90, \$29,150.22	20.	\$5.12, \$203.92		
	21.	\$147, \$7,497	22.	\$26.81, \$1,447.56		
	23.	\$23.86, \$819.36				
III	1.	\$5,505	2.	\$2,061.62	3.	\$50,675
	4.	\$410.41	5.	\$3,676.67	6.	\$7,260.24
	7.	\$300,030	8.	\$75.94	9.	\$882.78
	10.	\$257.11	11.	\$848.44	12.	\$316.44
	13.	\$288.00	14.	\$91,320.28	15.	\$20,050
	16.	\$4,740	17.	\$3,047.19	18.	\$55.27
	19.	\$470	20.	\$894.19	21.	\$1,728
	22.	\$4,763.64	23.	\$7136, \$3,133.33		
IV	1.	30%	2.	3%	3.	7.5%
	5.	4%	6.	2.50%	7.	1.25%
	9.	7.51%	10.	2.63%	11.	7.5%
	13.	1.67%	14.	0.44%	15.	5.0%
	17.	9.67%	18.	4%	19.	7.25%
	21.	6%	22.	7.75%	20.	13.71%
V	1.	52	2.	83	3.	204
	4.	209	5.	488	6.	332
	7.	70	8.	230	9.	121
	10.	57	11.	98	12.	38
	13.	74	14.	19	15.	34
	16.	156	17.	32	18.	38
	19.	57	20.	101	21.	\$31,765
	22.	$P + 1 = 5,000 = P(1 + rt), P = \$3,053.44$				
	23.	Borrow; Save, \$87.25				
	24.	1st, \$15.12; 2nd, \$9.25; Difference, \$6.17. First has use of money for full period.				
VI	3.	\$4.85	4.	\$33.48	5.	\$5.88
	7.	4¢	8.	\$177.73	9.	\$33.98
	11.	\$0.81	12.	\$11,271.42	6.	\$4.32
					10.	\$2.08
VII	1.	\$4.89, \$484.11	2.	\$5.12, \$193.68		
	3.	\$50.25, \$787.25	4.	\$1,255.43, \$127,507.05		
	5.	\$4.49, \$1,007.51	6.	\$12.61, \$407.56		
	7.	\$9.24, \$914.61	8.	\$8.27, \$319.92		
	9.	\$29.58, \$1,449.57	10.	18¢, \$17.66		
	11.	\$34.19, \$3,384.99	12.	\$3.03, \$722.37		

13. \$5.40, \$534.85
 15. \$1.80, \$28.15
 17. \$113.89, \$9,604.39
 19. \$302.90, \$28,544.42

14. \$7.30, \$722.88
 16. 58¢, \$18.62
 18. \$21,048.35, \$279,642.40
 20. \$10.67, \$4,305.51

VIII Follow forms in text and previous answers.

IX Follow text; use current date where no date is given.

Figuring for Fun

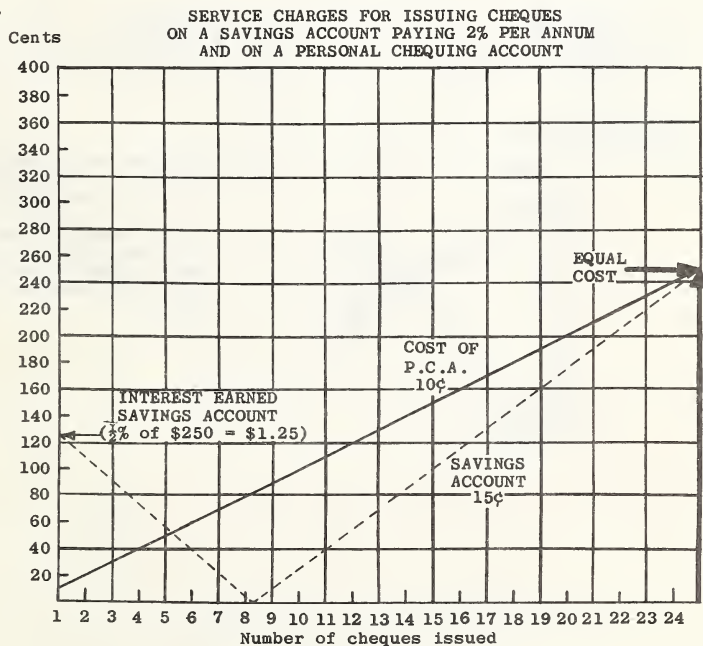
2. Neither, $9 + 9 = 18$

CHAPTER 13 - MONEY AND BANKING

I 1 - 7. Follow text

8. \$106.17, \$15.77, \$109.39, \$7.61, \$30.79.

II 2.



Equal at 25 cheques issued. Use savings account if less than 25 cheques per quarter issued. See accompanying chart.

- Cost for 78 cheques will be equal. If over 78 cheques per quarter, use P.C.A.
- Coins \$45.50, Bills \$570.00, Cheques \$253.38, Total \$868.88
- Deposit \$307.95

6. Coins :

1 \$116.69

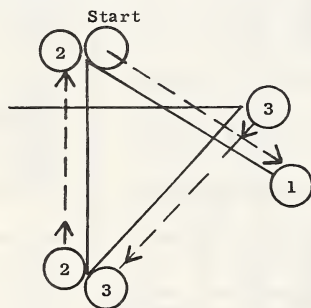
- III
2. 15¢,
 3. Final balance: \$379.10
 4. \$7.05
 5. Write name on the back of the cheque exactly as written on the face.

- IV
1. \$15.97
 2. \$8.90
 3. \$1,085.92
 4. \$677.80 - Text should read $1 \frac{2}{3}$ years, not $1 \frac{3}{4}$.
 5. \$14.24
 6. \$58.45
 7. \$1,203.22
 8. \$79.10
 9. \$309.63
 10. \$663,810.51
 11. Balance \$26.42, Service charge \$4.05, Interest 20¢ - 1st quarter 19¢, 2nd quarter 1¢

- V
- | | |
|------------------------|---------------------------|
| 1. \$1,324.42 | 2. \$5,402.82 |
| 3. \$1,675.62 | 4. \$11,506.18 |
| 5. \$392.44, \$334.94 | 6. \$1,051.52, \$1,417.26 |
| 7. \$5,203.67, \$4,377 | |

Figuring for Fun

3.



- (1) The start may be made from any point and moved in either of the two available directions.
- (2) In all subsequent moves the coin must start at a point so that it ends at the point from where the preceding coin started.

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